EXECUTIVE BURNOUT · TRADE: A CEO POLL · DON REGAN ON MERRILL LYNCH

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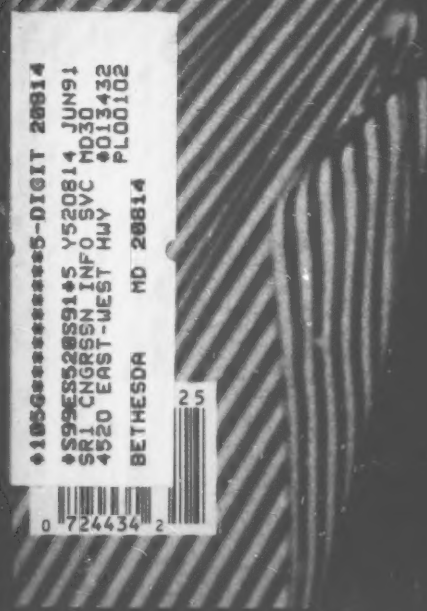
FORTUNE

INSIDE THE GLOBAL DRUG TRADE

The billionaires who run it

Why it's so hard to stop

What the U.S. can do



Colombian cartel kingpin Gonzalo Rodriguez Gacha is on America's most-wanted list.

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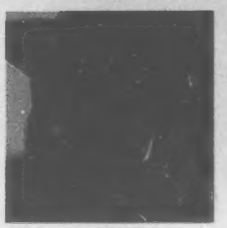

"I'm a revolutionary leader, not a drug trafficker."

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"They got too used to perks. Mahogany paneling everywhere. See you in Boca Raton. See you at the Louvre."

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"Those gigantic Japanese factories are like the battleship *Yamoto*. They can't hit anything quicker than their guns."

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"Anybody who counts the Japanese out when they hit a rough patch is kidding himself."

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"If a guy is burning out, I don't want him on my team anyway."

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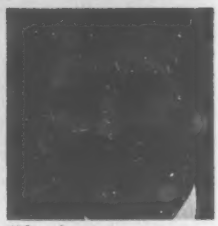

"Our inventory isn't on the shelves. It's out there on those pastures. It eats and it dies."

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THE EDITOR'S DESK

WHEN pollsters recently asked them to identify the greatest problem facing the nation, Americans responded with a single word: drugs. Sadly, the problem is also a big business. Trading in illegal drugs accounts for up to half a trillion dollars of the world's GNP, and the profits are astronomical. Governments, academics, and law enforcement agents are trying to understand the business in order to stanch the worldwide traffic in heroin and cocaine.

NAB PART PRASANA

Kraar in the Golden Triangle with confiscated marijuana

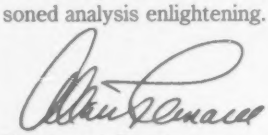
In this issue's cover stories, writers Louis Kraar and Andrew Kupfer paint the picture of this industry as it has never been painted before. "Others see only the scourge," says Kraar. "We looked at drugs as a business, albeit an illegal and deadly one. That brought out a lot of new insights." For example, Kraar found that the billionaire drug barons are as savvy as any other capitalists, concerned with creating demand, expanding geographical markets, and developing new products through the classic technique of line extensions.

JODI BUREN

Andrew Kupfer

Over two months Kraar and Kupfer logged 25,000 miles by air, visiting six nations on four continents to interview politicians, police, bankers, doctors, social workers, addicts, and drug dealers. Kraar, who has spent 15 years in Asia for FORTUNE and *Time*, was aided by reporter J. B. Blank, who had toured the opium farms in the drug-rich Golden Triangle a year ago. Kraar picked up the trail of the narcotics traffickers in the jungles of northern Thailand and followed it to Hong Kong, a major trading and money-laundering center. From there he found his way to Medellín, Colombia, headquarters of the world's largest cocaine cartel. He was advised to get in and out of town as quickly as possible. Noting that the cartel often outguns the Colombian government and that scores of public officials have been assassinated, Kraar says: "The whole country is a victim."

The realization is growing in many other nations that they too are victims. The seeming inability to do much about that fact has spurred experts to propose solutions ranging from military repression to legalization. Andy Kupfer, along with reporter Stephen Madden, looked hard at policies around the world—visiting Britain and the Netherlands, for example—to find out what has worked and what hasn't. Kupfer's proposals on what to do about drugs will be found on page 39. We think you will find the tightly reasoned analysis enlightening.



EXECUTIVE EDITOR

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Relations and competing firms have since launched a thousand hypes. In each, a spokesman identified with a product in some peculiar way brings his message to the hinterland, visiting talk show hosts, newspaper editors, and anyone else who will listen.

"Everybody's doing it," says Ed Stanton, CEO of **Manning Selvage & Lee.** "We have a tour on the road every week. You have to come up with a soft-sell approach—they aren't commercials. For Yuban coffee, we used a chef who talks about dessert . . . and *coffee.*" Stanton estimates that PR firms who specialize in consumer marketing may spend a third of their budgets on tours.

With such an important anniversary to publicize, will Edelman be hitting the road anytime soon? "I hadn't thought of it, frankly," he says. "I may take an interview or two, but I'm not going to go around. If my office said that, it's their imagination." **—Alan Farnham**

Terminal illness

■ Legislation aimed at protecting workers who use video display terminals (VDTs) may have finally found a home in Suffolk County, on New York's Long Island. If signed into law by the county executive, as many think likely, the legislation would be the first in the U.S. to regulate terminals in private businesses. The Suffolk bill requires companies with more than 20 terminals to provide adjustable furniture, special lighting, detachable keyboards, and work breaks, and to pay 80% of VDT workers' eye-care bills.

Business is booing the new law. Proponents reply that obeying such laws makes economic sense for companies, since improving the health of employees

MICHAEL BARNES

How great a risk is VDT work?

reduces sick days and medical claims. This argument raises the familiar question of why companies must be made to do what's good for them. They may find sufficient motivation in a new class of employee complaint: stress-related health claims. To help avoid them, Elizabeth Scalet, author of *VDT Health and Safety: Issues and Solutions,* recommends integrating other tasks into the VDT worker's job, involving VDT operators with other employees whose work they're entering into the computer system, and assigning certain data-processing tasks to teams rather than individuals. **—C.H.**

AT&T vs. IBM, DEC, H-P . . .

■ In a perfect world, all computers would be compatible with all software. Until last month, **AT&T**'s missionary program to establish its Unix operating system was the only continuing effort toward that goal. Now AT&T's rivals, among them **IBM,** have started building a new road to utopia. For computer users, computer makers, and software writers, the immediate result is confusion.

The rival group calls itself the Open Software Foundation, and in addition to IBM includes **Digital Equipment Corp., Hewlett-Packard, Apollo Computer,** and five foreign computer makers. They had grown wary of AT&T's grip on Unix, which it owns and licenses to others. Unix is the only operating system—the set of ground rules that control a computer's basic functions—available to all manufacturers for all sizes of computers. The new group aims to develop a standard based on IBM's Aix system, a variant of Unix, within 18 months and then license the product. AT&T announced no immediate plans for a counterattack.

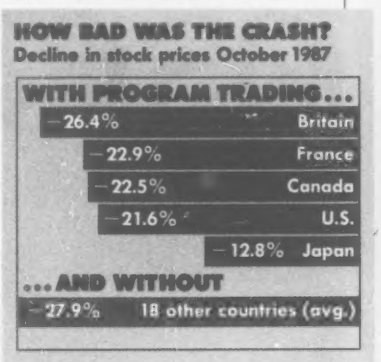
Computer users trying to make decisions are less interested in declaring fealty to either system than in seeing one or the other unequivocally established. "In this industry, everyone has his own religion," says Stephen Dube, a stock analyst with Shearson Lehman Hutton. "Everyone knows there's one god—we just don't know which god is the real god." **—William E. Sheeline**

With IBM's Akers front and center, computer makers face down AT&T.

OSCAR BURRIEL

Was program trading the crash's hero?

■ Myriad reformers trying to figure out how to prevent another stock market crash have been working from a scenario that features program trading and portfolio insurance as the mustachioed, black-caped villains of the piece. Others (including FORTUNE) have called this a bad case of typecasting. Now a new study by a group of Chicago-school economists concludes that computer-directed trading may have been not just an innocent bystander, as its defenders heretofore claimed, but a hero of the drama.



Program trading includes several computerized investing strategies. Relying on sometimes murky reasoning, small investors and some market analysts argue that the lightning speed of computer-directed trading triggered or exacerbated the crash.

But in *Black Monday and the Future of Financial Markets,* due this summer from Dow Jones–Irwin, UCLA economist Richard Roll points out that all 23 major world stock markets declined last October. In five of them—the U.S., Japan, Britain, Canada, and France—computer-directed trading was in wide use. The average market decline in those countries, he says, was

6.6 percentage points *less* than the average decline in the other 18 major markets. Roll's conclusion: "Computer-directed trading strategies such as portfolio insurance and index arbitrage, if they had any impact at all, actually helped mitigate the market decline." —**Monci Jo Williams**

Caring enough to copy the very best

■ Can little companies protect themselves from competitors who copy their products? And is there any justice in this big, bad world? Stephen and Susan Polis Schutz, a pair of hippies turned entrepreneurs, hope so.

Stephen, an artist, and Susan, a poet, are the founders of **Blue Mountain Arts**, a small, private, Colorado-based greeting card company. Sales last year were around $30 million, and *Time* magazine has proclaimed Susan, who writes some of the verses, the "reigning star" of nonoccasion, high-emotion greeting cards.

Blue Mountain Arts cards are the ones decorated with round yellow suns setting over tranquil lakes—and purple mountain majesties above the fruited plain poetry. Or are they? In 1986, 16 years after Blue Mountain Arts was founded, Susan entered a local shop and encountered a new line of cards from industry giant **Hallmark** so similar to Blue Mountain's that she couldn't tell the difference. She says she ran out of the store crying, and Blue Mountain sued.

Hallmark attorney Robert J. Sisk has admitted, according to press accounts, "We copied the idea . . . we imitated it . . . we emulated it," but argues that the copycatting was legal. Late in May, Susan and Stephen and any indignant observers got some satisfaction when the Tenth Circuit Court of Appeals upheld a preliminary injunction that prevents Hallmark from distributing the disputed cards. But Hallmark has continued to distribute altered versions. Blue Mountain will seek $276 million in punitive damages. —**M.J.W.**

In each pair, Hallmark is at left, Blue Mountain original at right.

Takeovers roll into high tech

■ Without fanfare or battle cries, corporate raiders have invaded new territory: the computer and electronics industries. The action began soon after the crash creamed technology stocks along with all the others. Hostile bids have since resulted in seven acquisitions, ranging in value from $10.5 million to $433 million. At least four other companies have been in play without result so far, and more raids are likely in coming months.

Two types of predators are stalking the high-tech prey. Most common are technology firms eager to gain market share by acquiring competitors. In the biggest post-crash deal, **Prime Computer** grabbed **Computervision** in February to expand in computer-aided design and manufacturing. Segments of the semiconductor and software industries are also consolidating.

The second breed of raiders is more familiar: aggressive private investors. Don't look for Carl Icahn here. Rather, meet Clifford Press, 34, and Laurence Levy, 31, of **Hyde Park Holdings**. These former Harvard classmates (MBAs, 1983) in March gained control of **High Voltage Engineering**, a producer of industrial instruments, electrical components, and specialty plastics, for $135 million. "A lot of people expected us to be slash-and-burn artists," says Press. "But we're in it for the long haul." They say they'd like another high-tech buy if it would connect well with High Voltage.

Hyde Park's Press (left) and Levy: into new takeover territory

The crash is only one factor in the new wave of high-tech takeovers. Another is the changing nature of the industry. Earlier, raiders might have worried about alienating software wizards and talented engineers, who could pack up and leave. But as high-tech industries mature, hatching revolutionary products is becoming less important than serving established customers and distributors, according to Dan Case, managing director of San Francisco investment bank Hambrecht & Quist. And if visionary technicians are less crucial these days, what about the leaders intent on building their companies into independent giants? That's getting tougher as more giants become established. Says Case: "Many entrepreneurs are willing to sell out because their fear-vs.-greed equation has changed." —**Alan Deutschman**

The next banks to be bagged

■ High tech isn't the only industry in which takeovers are just taking hold. In the wake of **Bank of New York**'s unfriendly bid to buy **Irving Bank**, industry analysts think more hostile bids for banks are on the way, even though government regulations complicate bank takeovers.

MERRILL LYNCH
THE STUMBLING HERD

Don Regan, who led the firm in its glory days, wonders how long it will take for his successors to get their act together. Others wonder too. Is Merrill takeover bait? ■ *by Brett Duval Fromson*

ON A WARM spring afternoon, the scent of freshly mowed grass fills the air at Merrill Lynch's Princeton, New Jersey, corporate campus. It wafts in the open office windows of Chief Executive William A. Schreyer, who, springlike, fairly exudes optimism about his company: "The future is now," says the 60-year-old Schreyer. "I intend to go out on a high. I'm not going to wiggle-waggle my way through the next five years." He predicts that over that period Merrill will earn a return on stockholders' equity of at least 15%.

A tough mark for Schreyer to hit. In four of the past five years, during a raging bull market, the company failed to achieve that 15% return. Its retail brokerage operation—the famous thundering herd that accounted for about two-thirds of Merrill's $11 billion in revenues last year—has steadily lost market share even as its profit margins eroded. The effort to build an investment banking division has had spectacular successes, an equally spectacular disaster, and a continuing inability to control costs.

The future may indeed be now, but perhaps not in the sense that Bill Schreyer intended. Mention his predictions to Donald Regan, former Secretary of the Treasury and Merrill's chief executive back in its glory days of the 1970s, and back comes a blast addressed to the company's current management: "How long does it take to get your act together?" he asks. "You guys have had over three years. To use a hockey metaphor, the puck is on the ice." The implied message is clear: Schreyer's team had better start scoring goals soon or it won't be on the ice much longer. A Merrill spokesman argues that Regan has been away from the business eight years. He says, "Current management does have its act together." Still, in the assessment of an investment banker: "If Merrill has a few losing quarters and the stock tanks, then Daiwa or Nomura could gobble it up in a second." The shares recently sold for $23, vs. a high of $41.50 in August 1987.

What happened? How could Merrill Lynch—a household name in America, the firm that brought Wall Street to Main Street—be brought to a state where its managerial excellence was even debated?

Responsibility begins with the dreams of Don Regan. "My hope was to see Merrill become a diversified financial services company," he says. "I believed that skilled management could control all phases of the business so that each area would be profitable on its own." Toward that end, in the early Seventies he began moving the firm away from reliance on its traditional strength, selling stocks and bonds at retail. Regan correctly feared that the coming of discount brokers would mean thinner profit margins in the brokerage business. He also discerned that the securities industry would be increasingly dominated by institutional investors and companies doing deals. Regan aimed to grab a larger share of the new markets for Merrill.

His idea to take the company deeper into investment banking seemed plausible enough. Merrill would underwrite securities for corporations, and then sell them to retail customers through its branch office network. In 1978, Regan served notice of his intentions by snapping up the investment banking house of White Weld. The acquisition of that venerable firm gave Merrill's thrust into investment banking a bit of pedigree and brought with it dozens of skilled investment bankers, traders, and research analysts. Soon Merrill had in place the pieces for its so-called capital markets division: departments devoted to mergers and acquisitions, underwriting, block trading, and institutional sales and research.

By 1980, Regan was feel-

Dan Tully, the jovial No. 2, recommends reciting the Optimist Creed.

Bill Schreyer, the ebullient boss, is sticking by his plan to make Merrill a global power in investment banking as well as brokerage.

ing pretty happy about his move. Investment banking revenues were $271 million, 96% higher than 1978, with a big share coming from the underwriting of bond funds. Says Regan: "We were poised to make a lot of money. We had momentum. Reasonable control over expenses. An excellent back office. And management was in place."

LOOKING at the figures, it's hard to dispute this. In 1980, Merrill achieved record results—$3 billion in revenues, $203 million in profits, and a 21% return on equity. On that high note, Regan quit to become Secretary of the Treasury. He had long dreamed of a Cabinet seat and already owned a home in Virginia near Mount Vernon, just a few miles from the White House.

Regan left in charge his longtime No. 2, Roger Birk, then 50. Bright, scrupulously ethical, Birk had saved Merrill's back office in the Sixties when paperwork threatened to swamp operations. But in the top job, his attention to detail manifested itself mostly as paralyzing indecision and an inability to step back and see the larger issues. Regan's sharply etched vision for the company began to slip out of focus. In the 1981 annual report, Birk summarized his strategy thus: "Whatever direction the financial services industry may take, Merrill Lynch will be in front."

Oddly, for all of Birk's obsession with detail, Merrill was slowly losing its grip on costs. From 1982 through 1984, revenues increased 20%, but expenses mounted by 33%, as Merrill expanded into everything from commercial lending in Hong Kong to selling life insurance in the U.S. Some of the biggest cost increases came in investment banking. Led by two former retail brokers, the unit added people at a frenetic pace. Overall, the company's head count swelled from 37,900 to 44,000 from 1982 to 1985. Observes a former chief financial officer: "Nobody wanted to hear about cost cutting. They explained all the spending as being for the future."

Four years after Birk took over, the firm

REPORTER ASSOCIATE *David J. Morrow*

PHOTOGRAPHS BY HANS NELEMAN

KATHERINE LAMBERT

Don Regan keeps a bull in his new office, but isn't bullish on Merrill.

REGAN ON HIS OLD FIRM

Just before he set off on tour to publicize his new book, former Merrill Lynch chief executive Donald Regan talked to FORTUNE *in the offices of his investment firm, Regdon & Associates, in Alexandria, Virginia. For the first time since leaving Merrill, the former Treasury Secretary spoke about his old firm. Excerpts:*

On what went wrong after Roger Birk succeeded Regan:

Some of the people under Roger got a little too headstrong and a little fat and lazy. Merrill was not exactly run in a spartan manner. Eventually costs became a problem. They got too used to limousines and perks. Look at the new headquarters. Mahogany paneling everywhere. The swish dining rooms. The chauffeured cars. See you in Boca Raton. See you at the Louvre. That attitude has permeated Merrill as well as the rest of Wall Street.

On the performance of current top management:

I have no problem with their trying to take Merrill in a new direction, but how long does it take to get your act together? Most FORTUNE 500 corporations give the CEO one to two years.

On management's statement that it is investing for the long term:

You don't have the luxury of the long term. It's a cold, cruel world out there. After all, would Merrill recommend to its customers that they buy the securities of a company whose business isn't improving?

On management's strategic vision:

Great, they have vision. But are they certain that they have expenses well under control? Are they willing to defer compensation until the performance improves? Why pay top executives who have been leading Merrill's mediocre performance? Would they leave if you didn't pay them? Maybe, but maybe that's not so bad.

On Chairman William Schreyer:

Very sophisticated in the ways of Wall Street. Well-rounded background. People naturally like him. A charming and good natured personality. He can be an inspiration to people. He has a game plan and is trying to execute it.

On President Dan Tully:

He is a salesman's salesman. The big producers like him. A heart of pure gold.

On whether Merrill needs new top management:

I don't know. Some think yes, some say, "Who would do any better with a firm of this size?" If you say Peter Cohen [the combative head of Shearson Lehman Hutton], then you might lose all of the top managers.

On the challenges ahead at Merrill:

First, how are they going to handle deregulation? Second, they have to figure out how to control costs and control the allocation of capital. They must minimize the risks of losing their capital. Third, they must keep control over their people so that they do not get into the insider trading problems afflicting so many other firms. Fourth, they must make sure that they have enough good people to get the job done.

seemed headed for its first annual loss in history. As costs exploded, brokerage commissions stagnated and investment banking fees fell. Only the decision by Birk and then second-in-command Schreyer to sell Merrill's Wall Street headquarters and book a $127 million capital gain kept the company out of the red. As it was, in 1984 Merrill earned a slim $95 million on revenues of $6 billion, for an embarrassing 4.6% return on equity.

MERRILL needed help. Birk was suffering from sleepless nights, which did nothing to improve the speed of his decision-making. Increasingly he delegated matters to Bill Schreyer, who had been overseeing the bulk of Merrill's business since 1978, when he became chief operating officer of both the retail brokerage and growing investment bank. Everyone liked Schreyer, a smiling, backslapping son of a former manager of Merrill's branch in Williamsport, Pennsylvania. The only knock against him, insiders say, was that he was too nice, too much of an old boy to shake up his colleagues.

Schreyer turned for assistance to McKinsey & Co., the management-consulting firm, to find ways to cut costs. "Let's let McKinsey be the lightning rod," Schreyer recalls thinking to himself. The consultants' six-month study revealed that Merrill needed far more than corporate liposuction. It made clear what most people at the company already knew—that Merrill lacked strategic direction and was poorly organized. Most important, the study resulted in the first economic map of Merrill, whereon every expense was allocated to a product or service. The consultants uncovered a ton of hidden costs.

Schreyer emerged from the study with a plan to revamp the firm. Merrill would be rearranged into three separate businesses within a holding company: a U.S. retail brokerage; a much expanded capital markets group; and an international division that would be part brokerage and part investment bank. Each unit was to focus on a particular set of clients: retail on individual investors in the U.S; capital markets on institutional investors and corporations issuing securities; and international on overseas investors and issuers.

In a sense the plan was too much for Birk. Over the Memorial Day weekend in 1984, Schreyer presented his agenda for the future to his boss in private. According to Schreyer, the CEO responded, "Look, I want to retire at age 55. That's a year from now. I think you've got the thing pretty well figured out. I'm going to have to stay far longer than I

want to if the job's going to get done." Schreyer says that he neither urged his boss to quit nor argued against his leaving. "He had said before that maybe he wanted to do nothing for a while," recalls Schreyer. "And I said, 'If you're sure, let's sit down and do it.' " So they did. A month later, in June, Birk announced that he was stepping down as CEO and kicking himself upstairs to become chairman of the board for the next year.

No sooner was the crown placed on Schreyer's head than he received a shock—to his heart. "I'm out in Chicago," he recalls, "entertaining clients, playing tennis. My partner is Marty Riessen, the former doubles champion. Near the end of the second set, I get a little chest pain." The ache was acute angina. Schreyer's doctor scheduled him for a triple-bypass operation. A bit ominously, the surgery, scheduled to be performed on November 1, All Saints' Day, was postponed by the hospital until November 2, All Souls' Day. Schreyer remembers Birk saying to him, "Don't die on me, you son of a bitch."

After the operation, Schreyer spent two months away from Merrill headquarters recuperating. In his absence, his top subordinates began fighting among themselves over how to cut costs to meet the plan. The chief administrative officer, Robert Rittereiser, wanted to fire brokers and bankers. Daniel Tully, then head of those units, vehemently opposed the idea. Not coincidently, Rittereiser and Tully were both jockeying to become Schreyer's chief operating officer. From afar, Schreyer watched the high-level tussle with growing annoyance. "Being away," he says, "gave me a chance to see who I could count on."

UPON HIS RETURN in January 1985, he decided that he did not want to count on Rittereiser. He thought Rittereiser had overreached himself by pressing for Merrill to severely prune its retail brokerage, which Schreyer, the branch manager's son, loved as much or more than anyone else at the firm. Says Schreyer: "I told him that what I wanted was a chief administrative officer, not a crown prince." No jaws dropped when Rittereiser quit Merrill in June 1985 to become president of E.F. Hutton.

Schreyer quickly tapped Tully, a bluff 6-foot 3-inch former broker, to become chief operating officer. Within months Schreyer assembled the rest of his team. John L. (Launny) Steffens, now 46, national sales director and a Tully protégé, took over the consumer markets division. Jerry Kenney, another relative youngster at 46, remained head of capital markets. He had come aboard when Merrill bought White Weld, where he had been director of research. Abandoning Merrill's tradition of promoting exclusively from within, Schreyer imported a new chief financial officer from Detroit—General Motors' Courtney Jones, 48. Schreyer reasoned that someone who could design cost controls for GM could do the same for Merrill.

How has the new lineup done in the last three years?

Merrill's retail brokerage has fallen short of security analysts' expectations. Says one: "You would have thought that having the most valuable distribution network on the face of the earth would be an incredible advantage in a bull market." But Merrill's brokerage profits remain resolutely average, an estimated 10% return on the capital invested in the business.

Brokerage headman Launny Steffens has taken steps to improve profitability. He lessened Merrill's reliance on commissions from stock and bond trades by increasing fees earned managing the mutual funds the firm runs for its customers. So-called asset-management income has two advantages. The profit margin averages 35%, and the business takes less of a hit than retail stock trading in a bear market. Assets under Merrill management climbed from $48.1 billion in 1984 to $84 billion by the end of 1987, a feat unequaled by any other securities firm. Steffens also boosted revenues by introducing a raft of new products. For example, in 1986 Merrill sold $648 million of insurance, mostly variable life and single-premium whole life policies. That was 278% more than 1984.

But not even Steffens's yeomanly job could return the retail brokerage to the high-

Jerry Kenney (seated) runs the investment bank, Launny Steffens the brokerage.

This year Merrill underwrote more stock and bond issues than anybody else . . .

1987 Leading Underwriters*

	Net proceeds (in millions)	Market share	Issues
1 Salomon	$40,284.4	14.8%	327
2 First Boston	$36,628.1	13.5%	256
3 Merrill Lynch	$33,482.8	12.3%	301
4 Goldman Sachs	$32,442.3	11.9%	303
5 Morgan Stanley	$29,723.8	10.9%	297
6 Shearson Lehman Hutton	$22,504.3	8.3%	320

*Domestic issues only.

1988 Leading Underwriters*

	Net proceeds (in millions)	Market share	Issues
1 Merrill Lynch	$16,194.7	15.8%	163
2 Salomon	$14,556.9	14.2%	108
3 Goldman Sachs	$13,238.1	12.9%	167
4 Morgan Stanley	$10,654.3	10.4%	110
5 First Boston	$10,654.3	10.4%	109
6 Shearson Lehman Hutton	$8,995.8	8.8%	132

*Domestic issues only. Data reported from 1/1/88 through 5/18/88.

SOURCE: IDD INFORMATION SERVICES

profit days of the Seventies, when the return on capital hovered around 20%. No matter how much he goosed revenues each year, his costs rose as fast. Says Sanford C. Bernstein & Co. stock analyst Michael Goldstein: "Even good managers can't dramatically improve retail margins. A full-service brokerage is a high-cost business."

Meanwhile, over in capital markets, Jerry Kenney faced a different set of challenges. He managed to jack up revenues, albeit less than Steffens. Investment banking income rose to $996 million by year-end 1987, a not at all shabby 71% above 1984. Debt and equity underwriting grew 284%. Most dramatically, mergers and acquisitions activity increased 159% over the year before.

But bigger was not necessarily more profitable. While Kenney created an investment bank whose revenues are in the same league as other big houses, its profits remain smaller than those of its principal competitors. For instance, compare Merrill's performance with Salomon Brothers, which in the Eighties bounded into investment banking from its traditional niche as the master trading house. Mike Goldstein estimates that from 1985 to 1987, Salomon's average profit margin in investment banking was 33%. Merrill barely earned anything.

Kenny's strategy now appears to have been flawed from the beginning. Merrill, the high-cost firm, could not profitably gain market share by cutting prices. He underestimated the price of hiring hundreds of new people to compete with the old-line investment banks. Today, Kenney concedes that Merrill's foray into capital markets has cost the shareholders "a couple of points or more of return on equity a year."

KENNY WOULD have had even worse results if his mergers and acquisitions team hadn't started hitting homers in 1985. Three of the company's smartest investment bankers came up with a way to increase Merrill's involvement in the mergers and acquisitions game. Barry Friedberg, Kenneth Miller, and Robert Mancuso decided to use Merrill's balance sheet as a substitute for its lack of reputation: They pioneered the bridge loan—short-term financing for dealmakers intent on leveraged buyouts.

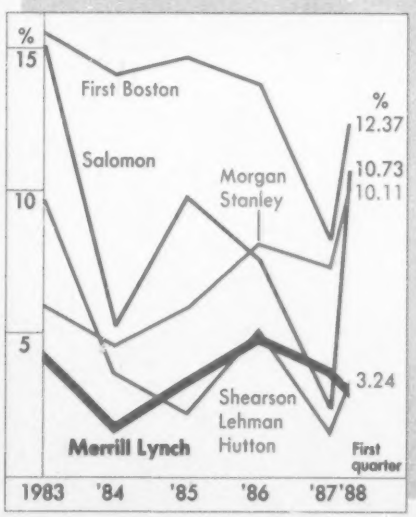
Would-be acquirers loved it. In the next 12 months Merrill more than doubled its mergers and acquisitions business. Last year was even better, despite copycat efforts from other investment banks: Using bridge loans, Merrill completed two of the biggest leveraged buyouts ever. The LBOs took Borg-Warner private for $4.8 billion, and Supermarkets General for $2 billion. The fees rolled in, an estimated $128 million on those two transactions alone. Fat city.

Unfortunately, the capital markets group made mistakes in other parts of its business that virtually wiped out these gains. Only days before Easter 1987, Kenney was rocked by the news that a 32-year-old trader had lost upwards of $350 million on a bad bet in the mortgage-backed securities market.

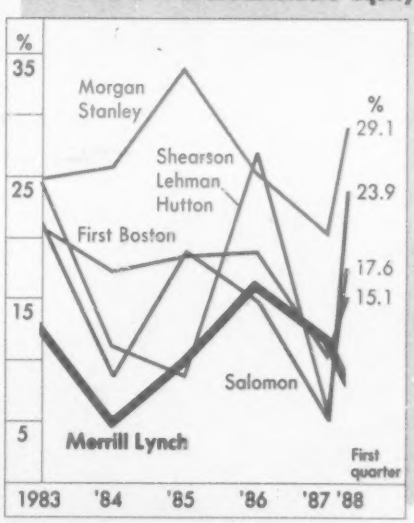
continued

. . . but in overall profitability, it remains a laggard.

Profit Margins



Profits as a % of Stockholders' Equity



Profitability figures for the first quarter of 1988 are annualized and don't reflect seasonal variations in the business. All other numbers are annual figures.

The trader, Howard Rubin, bet that prices were headed higher. He was wrong. But instead of taking his initial loss, estimated to have been around $50 million, Rubin tried to recoup by doubling his wager—this time without asking anybody's permission. Says a still-fuming top Merrill executive: "I hope he goes to jail for hiding his trading tickets from us." Rubin's lawyer notes, however, that no criminal charges have been filed against his client, who, he says, "acted properly." An expert on trading, called in by Merrill to help it avoid similar debacles, observes that there's plenty of blame to go around: "The biggest reason for the loss was that the managers didn't understand the volatile nature of the mortgage obligations that the trader had in his portfolio. They were ignorant."

While other Wall Street firms lost money trading last year, Merrill dropped the most by far. Because of the April loss, Merrill's 1987 operating income before extraordinary items and taxes plunged 45% compared with the year before. Says Don Regan: "They are discounters in an upscale business. This means high volume and low margins. Unfortunately, those profits can be wiped out by one huge loss like the trading mess."

Meanwhile, Merrill's London-based investment bankers have been losing their Turnbull & Asser shirts in Western Europe. Schreyer rolled the international division into the capital markets group in 1986. In trying to build Merrill's global presence, Kenney hired too many dealmakers who underwrote more stocks and bonds than Merrill's institutional brokers could sell to their clients at a profit. Since London accounts for over 50% of the international operation's costs and almost 50% of revenues, as it goes so goes the entire overseas unit. The barons running Merrill's London operation appear to have gone off in the wrong direction at first. Says Kenney: "They tried to compete head-on against European investment firms on their home turf. We have refocused the business toward cross-border transactions where our global origination and distribution capabilities are tops." Still, according to a top Merrill capital markets executive, the international group continues to lose money at the rate of $50 million a year. A Merrill spokesman denies this and, without disclosing figures, says the division is profitable.

With the stock market in the doldrums and just about everybody's brokerage operation hard hit, 1988 is treating Merrill even worse than 1987. In the first quarter, revenues dropped 5% compared with the same period in 1987. Commissions for the retail brokerage sank 32%. Pretax earnings plunged 59%.

Particularly troubling has been Merrill's slump in mergers and acquisitions. Merrill has not been doing the big deals of late. An ex-Merrill investment banker explains, "Their M&A business is dependent on bridge loans, but now everyone can offer a bridge if they need to. That's why Merrill's been nowhere in that business in 1988 when it is hot as hell."

Some big producers, including Mancuso and Miller, have already split. Says a recently departed investment banker: "Frankly, I left because it's worrisome when senior management does not understand one of the two main businesses. It does not inspire confidence that big mistakes will be avoided."

> The former CEO argues that Merrill must merge with a bank or financial services company. Is Regan trying to put his old firm in play?

Merrill still has a cost-control problem. Despite Schreyer's much ballyhooed elimination of 2,800 jobs in 1984 and the impressive cost-allocation system designed by CFO Jones, the number of people on the payroll suggests that management hasn't made the cuts stick. "We had 44,000 employees in early 1985," recalls a former Merrill executive. "By 1987, they had almost 47,000. That's managerial progress?" Since the panic of October 19, Merrill has laid off about 3,000 people, which brings the roster back to 1985's 44,000. An investment banker who left the company comments, "Sometimes, you have to be ruthless about laying people off. They're not." A former member of the board says, "I could run a small Latin American country on what Merrill could save if they knew how." A company spokesman responds, "We've put in place new financial information and control systems to better understand and control costs."

Schreyer and Tully have no intention of backing off their plan to be the biggest brokerage and investment bank. Says Tully: "I think it is and was and will be the correct strategy." They argue that it's still too early to know how successful the plan will be. Tully notes that he and his compatriots "all sing the Optimist Creed," a piece of inspirational wisdom that includes avowals "to look at the sunny side of everything and make your optimism come true . . ." He has enshrined a written recitation of the faith over the john in his executive bathroom.

Most security analysts don't share the optimism. A research analyst who covers the company asks, "Management screwed up in the bull market. Why should they do better now that we have a bear market?" The analysts say that the extent of Merrill's future woes will depend on how many of its businesses turn down simultaneously. The latest quarterly income statement suggests that most have. Regrettably, fixed costs haven't. That could result in Merrill's first yearly loss ever.

Further out, Merrill's prospects don't look bright. As Glass-Steagall gets chipped away, commercial banks will attack with a vengeance. And Merrill will still be competing against its traditional Wall Street rivals who run more tightly focused operations. Says Harvard business school professor Robert G. Eccles, co-author of a forthcoming book on investment banks: "In any one of Merrill's 125 businesses, there will be at least two other firms that will kill to do well."

The big question now is whether top management can prevent further slippage. Don Regan has reservations. "We're in a changing financial world. The banks are coming in, and they will have their Third World loans behind them," he says. "If Merrill tries to stand alone against those forces, it will be mediocre in the 1990s. Morgan, Chase, and others will bid away its securities business. Then what will management do?"

THE FORMER CEO argues that Merrill must merge with a commercial bank or some other large financial services company. "It would give the firm a hell of a competitive edge in servicing the full range of corporations' financial needs," he says. "Merrill is not smart enough to start lending money *de novo*."

Regan has a few prospective buyers in mind. They include Morgan Guaranty and—hold on to your hats—General Motors Acceptance Corp. Is he trying to put his old firm in play? Its stock sold recently at 80% of book value. Regan will only say, "This is a matter for management and the board." Schreyer replies, "Right now our determination is to remain fiercely independent." But can they? F

LOOK OUT, WORLD, HERE WE COME

America's big bosses say the U.S. is doing just fine against the international competition. They love the world marketplace. And protectionism? Forget it!

■ *by David Kirkpatrick*

WHERE international trade is concerned, America's top executives are a consummately confident bunch. The latest FORTUNE poll of U.S. CEOs finds that by a margin of 3 to 1 they reject the trendy doomsayers of decline and see American industry gaining on Japan. Their overwhelming preference is for open borders, not protectionism.

"I'm very optimistic about America's international competitiveness, more so than I've been in a long, long time," says William O. Bourke, chairman of Reynolds Metals. Bourke and many of his comparably cheerful colleagues mention the devalued dollar, the shrinking trade deficit, the aggressiveness of newly restructured American companies, increased productivity, and U.S. success at creating jobs among the many reasons they believe the country is not sliding downhill.

THE OPINION RESEARCH firm of Clark Martire & Bartolomeo polled 218 CEOs between May 10 and May 18—before President Reagan vetoed the trade bill and before the first-quarter trade figures were released, showing a sharp improvement in U.S. performance. All the respondents head companies listed in the FORTUNE Industrial 500 or Service 500. A stunning 81% of those in this latest FORTUNE 500/CNN Moneyline CEO Poll believe the U.S. economy does not need greater protection from imports. Says George Keller, chairman of Chevron and an ardent free-trader: "I don't think anything good comes from protectionism. It just makes us lazy. It's the kiss of death." Daniel Smith of Kalamazoo's First of America Bank Corp. concurs: "More protectionism would kill us." Adds Marion O. Sandler, president of Oakland's Golden West Financial Corp., a big savings and loan holding company: "Protection is the same thing as maintaining the status quo. It stifles innovation and creativity. That won't help us compete in the long term."

Even some CEOs whose companies benefit from tariffs oppose them. Dallas-based National Gypsum competes with foreign ceramic tilemakers who pay substantial duties to enter the U.S. But CEO John P. Hayes wouldn't mind seeing that tariff lifted. "It would be painful, but we'd beat it," he says. "I'm basically antiprotectionist because I think anything that raises the cost of goods for the American consumer lowers the American standard of living. We ought to compete head-on." Says another executive in a protected industry: "Putting up barriers weakens our will to improve productivity by modernizing and generally honing our management skills. We're going to have to pay the piper sooner or later."

GEORGE KELLER
Chevron

Some CEOs caution, however, that the U.S. cannot simply throw open the gates to completely free trade. Says Roger Stone, chairman of Chicago's Stone Container, a paper company: "In general the world is much better off without barriers. But it's got to be quid pro quo." Bourke of Reynolds is more blunt: "This notion of free trade everywhere is nonsense. It just isn't going to happen. We don't need strict new protectionist laws, but each industry has to be looked at on its own merits."

■How are big global players dealing with the cheap dollar and protectionist pressures? This article surveys the sometimes surprising reactions of U.S. CEOs. The following stories examine the effects on America's roller-coaster semiconductor industry and Japan's amazingly undaunted automakers.

While they oppose increased protection from imports, almost half the CEOs who compete internationally believe their own company is not on a level playing field with foreign competitors. Many see the big problem to be meddlesome government at home rather than trade policy either in the U.S. or abroad. Chevron's Keller, for example, says high federal and state corporate taxes in the U.S. are his company's biggest competitive disadvantage. "European oil companies don't pay any meaningful taxes at home on production in another country, as we do," he says, "and in Japan there are government subsidies for exploration." A burgeoning domestic regulatory burden is another common complaint. John H. McConnell, chairman of Worthington Industries, says the Columbus steel processor now spends over $500,000 each year to comply with recently imposed government regulations, including those affecting retirement and medical plans.

Despite their distaste for government intervention, however, a number of top executives, including McConnell, point approvingly to the Japanese government's activist role. Michael W. Wright, chairman of Super Valu Stores, the nation's largest diversified service company, speaks for many: "Government and business ought not to be adversaries. In Japan there is a very close partnership to help identify and exploit foreign markets."

Nonetheless, the CEOs don't fear the rising sun. They think it's morning in America. Fully 77% believe the U.S. is gaining ground economically compared with Japan and the newly industrializing countries of Asia. And though they are split almost evenly over whether the globalization of industry is good for the U.S. standard of living, most are firm

REPORTER ASSOCIATE *Wilton Woods*

believers in a world marketplace. Says Bourke: "The Japanese and the French and the Germans are building plants in this country. That's good. They're just doing what we've been doing for 50 years. Hell, our company operates in about 35 countries. Things have a way of evening out. It's one big global economy now. They can come here, and we can go there."

MARION O. SANDLER
Golden West Financial

When seen through globalist goggles, what looks good at home? "I think we have accomplished a small miracle in restructuring our basic manufacturing industries," exults Donald Clark, chairman of Household International, an Illinois financial and manufacturing company. Says Hayes of National Gypsum: "Our country has the best record in the world at creating jobs in the past several years, and they aren't just low-paid service jobs."

To Chairman John J. Murphy of Dresser Industries, things aren't nearly as bad as they were a few years ago. His energy products and services company, headquartered in Dallas, has recently begun bringing overseas production back to the U.S. "We can compete on a cost and quality basis with anyone in the world today, using our U.S. plants," he says. "The American worker is as productive as anybody, given the right tools."

But even the optimists don't think Americans should start letting up now that the outlook has improved. Says Sandler of Golden West Financial: "We've turned the corner in some areas, and in others we still have work to do. But we've been shocked out of our complacency." Wright of Super Valu Stores sees "a big warning light" when it comes to domestic social difficulties: "A large proportion of our population is drug and alcohol dependent, and many don't even graduate from high school. We have to come up with some very specific answers for those problems or we will start falling behind other nations, particularly those of the Pacific Rim that focus on educating their entire population."

A MINORITY of CEOs believe the nation's domestic troubles are so severe that the U.S. is in fact in a decline. Says Dwight L. Carlisle Jr., president of Russell Corp. of Alexander City, Alabama, a maker of textiles and athletic apparel: "Education is the real weakness I see today. It worries me greatly." Chairman Robert Strickland of Atlanta's SunTrust Banks sees storm clouds elsewhere: "Our fiscal policy, our national financial management, is headed in the wrong direction. We have to spend less, borrow less, and save more."

Although the deal may not be approved, the executives take heart from the free-trade agreement recently negotiated between the U.S. and Canada. "Trade expansion rather than restriction just makes good sense," says Stone. "It will benefit the economies of both countries." Bourke says the agreement will eliminate tariffs that both countries have levied on aluminum, for example. Because the tariffs are higher than transportation costs, Reynolds supplies customers anywhere in Canada from two smelters in Quebec and customers across the U.S. from smelters in Washington and Oregon—even if the Canadian customer is in Vancouver and the American customer is in Illinois. If the tariffs disappear, Reynolds will simply supply customers in either country from the nearest smelter, at a substantial saving in shipping expense.

WILLIAM O. BOURKE
Reynolds Metals

There's nothing like continued good news about declining trade deficits to make a CEO feel good about his business and his country, especially when the good news takes the concrete form of fatter order books. All in all, a remarkable—and remarkably speedy—turnaround from the gloom of less than a year ago. ■

Q Is the U.S. economy gaining or losing ground to Japan and the new industrializing countries of Asia?

A

Is gaining ground	77%
Is losing ground	18%
Not sure	5%

Q Do you believe that the U.S. economy requires or does not require greater protection from imports?

A

Requires protection	11%
Does not require it	81%
Not sure	8%

Q Do you mostly agree or disagree with those who say the U.S. is in decline? Why do you feel that way?

A

Agree	22%
Disagree	75%
Not sure	3%
WHY AGREE	
Trade imbalance shows the U.S. is uncompetitive	31%
Growth slowing as U.S. loses world dominance	22%
The budget deficit is not being corrected	14%
U.S. companies do not plan for the future	10%
WHY DISAGREE	
U.S. becoming more competitive and aggressive	29%
The economy slowing only relatively, not declining	14%
U.S. standard of living is admired worldwide	12%
Dollar's value has made U.S. goods competitive	11%
U.S. productivity is increasing	9%
U.S. remains tops in product quality	8%

Q Is your company on a level playing field with foreign competitors?

A

On a level playing field	43%
Not on a level field	40%
Does not apply	12%
Not sure	5%

Q As industry globalizes and jobs move easily across borders, is the U.S. standard of living being helped or hurt?

A

Helped	39%
Hurt	42%
No difference	12%
Not sure	7%

COMPETITION

THE U.S. CHIPMAKERS' SHAKY COMEBACK

Aided by the mighty yen, they have won an important battle in their war of attrition with Japan. Now that there is a lull in the fighting, will they seize the chance to rearm? ■ *by Gary Hector*

THE GOOD TIMES are rolling again for U.S. makers of semiconductors, the tiny electronic circuits-on-a-chip that form the heart of modern computers. Two years ago pessimists were saying, "*Sayonara,* Silicon Valley." But the pitiless onslaught of giant Japanese competitors has let up, and a resurgent personal computer industry has helped put American chipmakers back on their feet. Prices are soaring, factories are running full tilt, profits are pouring in. Sales increased 20% last year and should bump up at least that much again in 1988. Though chastened by their brush with disaster, top Silicon Valley executives sound hopeful. "The whole environment has changed," says Charles Sporck, chief executive of National Semiconductor Corp., an industry leader. "That bodes very well for us."

But can they keep it up? Now the challenge to the industry is to seize the pause in the war to fix the weaknesses that the Japanese exploited. That's a daunting chore. To succeed, the U.S. companies must turn a momentary advantage into longer-term superiority. Though the swing in currency ex-

REPORTER ASSOCIATE *Carrie Gottlieb*

ED KASH

America's edge *over the Japanese comes in small, flexible factories like this one at Cypress Semiconductor in Silicon Valley, run by . . .*

change rates now allows Americans to produce many chips as cheaply as the Japanese, by and large Japan still has the edge in manufacturing—developing efficient production lines, keeping defects to a minimum, and making full use of capacity.

What troubles U.S. semiconductor executives is not the short term, but the industry's long-run viability. "If you look at the overall industry," says Robert Noyce, vice chairman of Intel Corp. and a founding father of the semiconductor business, "its return on capital is pretty poor over any extended period of time. Right now is about as good as it gets. The question is whether the industry can attract enough capital to keep up with its needs." Since 1982 profits of the five largest independent chipmakers haven't thrilled investors. According to figures from Shearson Lehman Hutton, the average return on shareholders' equity over six years for the *best* performer, Motorola, was an unspectacular 10.4%. And its profits were helped by earnings outside the semiconductor industry.

DEMAND FOR CAPITAL is already vast—and growing. A first-rate fabrication facility for mass-produced memory chips now runs about $200 million. By the early 1990s the cost will easily top $300 million, as each new generation of products requires larger and more expensive equipment. G. Dan Hutcheson, an analyst at VLSI Research, a market research firm in San Jose, California, suggests that if current advances in technology continue, sometime in the 1990s the cost of such a facility could hit $1 billion—a sum beyond the reach of almost any U.S. chipmaker except IBM or AT&T. Yet Japanese semiconductor companies, which are part of larger corporate groups like NEC and Toshiba, are big enough to handle that kind of investment.

The Reagan Administration's tough trade negotiators deserve part of the credit for shifting the competitive balance between U.S. and Japanese chipmakers. Says Jerry Sanders, the white-maned chief executive of Advanced Micro Devices, with characteristic overstatement: "Without the U.S.-Japan trade agreement, the U.S. industry would be essentially dead." But the real cause of the turnaround is the supine dollar. Measured in dollars, Japanese manufacturers' costs have increased rapidly over the past three years, permitting U.S. companies to compete head to head on most items. The American industry has a respectable edge in creating new products and manufacturing custom-designed chips. In these markets, U.S. semiconductor companies can not only butt heads with the Japanese, they can win.

The advantage, however, will not be enough to allow the U.S. to reclaim lost territory. So far the industry's biggest black eye has been sales of commodity items, notably DRAMs, dynamic random-access memories, which personal computers use in abundance. The Japanese simply stole that market by selling chips below cost; they now have a 90% share. Even if the U.S. could outgun the Japanese, lined up behind them are manufacturers of these high-volume products in South Korea and elsewhere in Asia.

. . . **Chipmaking upstart** *T. J. Rodgers*

Now the battle focuses on lower-volume, more customized integrated circuits. The Japanese have stepped up research and development on products the U.S. has dominated—especially microprocessors, those ubiquitous tiny computers compressed into a single chip. And they are looking for ways to manufacture lower-volume products more efficiently than the U.S. can.

The weakness of the American semiconductor industry was probably exaggerated in 1985 and 1986. Though the U.S. no longer dominates world markets, it remains the world's largest chip producer. Dataquest, a market research firm in San Jose, estimates that this year U.S. manufacturers will turn out some $25 billion of chips, vs. $22 billion for the Japanese. "That flies in the face of commonly held opinion," observes Michael Boss, who follows the industry for Dataquest.

What distorts the common perception is that the most widely used estimates of the U.S. industry's size include only the production of "merchant" semiconductor companies, which sell chips on the open market. Five big and more than 100 smaller merchant companies will produce the bulk of U.S. chips this year. Dataquest analysts put the figure at more than $18 billion; the remaining $7 billion is their estimate for semiconductor makers that are part of larger U.S. companies, called captive manufacturers. This group includes none other than IBM, whose $3.1 billion semiconductor output last year makes it the world's second-largest maker of chips after NEC. But since captives produce almost exclusively for their parent companies and don't publish their output, many estimates of the industry's size exclude them.

The U.S. has yet to concede any markets to the Japanese. IBM manufactures DRAMs in large quantities; so do Texas Instruments, Motorola, and Micron Technology, a small Boise, Idaho, company that had $102 million in sales for the six months that ended in March. Americans are still five years ahead of the Japanese in some products. For example, the U.S. is the only significant player in the hottest new market in the business—RISC (for reduced instruction-set computer) microprocessors, which run at speeds four to ten times those of today's most popular models. The U.S. also sets the standard in small, flexible manufacturing facilities that can turn out dozens of different types of chips on a single production line.

NEVERTHELESS, U.S. executives and investors alike are terrified that the Japanese will repeat their conquest of the DRAM business in other products. Armed with mountains of capital, the Japanese added DRAM capacity steadily throughout the 1970s. By the 1985-86 slump they had helped create a huge oversupply. To minimize losses on capital invested in factories, Japanese producers flooded the market with DRAMs and to a lesser extent with other commodity chips like EPROMs (erasable, programmable, read-only memories). While this behavior was perfectly rational for the Japanese, it led to cries of dumping in the U.S., where domestic manufacturers lost more than $2 billion battling to keep market share.

By operating their plants at full capacity an average of 130 hours a week, Japanese producers achieve significant economies on large production lines. In some cases their costs have been 30% or more below U.S. manufacturers'. Even so, security analysts

estimate that they lost some $4 billion in 1985-86. That experience alone should help head off future price wars—especially since the highflying yen has knocked the Japanese out of their position as the industry's low-cost producer. They now lag behind competitors in Korea and other Asian nations that have not been so hard hit by rising currencies. Despite the good news, most U.S. chipmakers aren't comfortable enough to go charging back into the DRAM market. Says Jerry Sanders of AMD, which abandoned the business in 1986: "If you've been bitten once by a wild mad dog, there is a certain caution at your next meeting."

Japan's edge *over the Americans comes in large, robotized factories. This Mitsubishi plant in Saijo turns out huge quantities of a few commodity products. Number of production workers: 0.*

Exactly what it was that tamed the Japanese is of great importance to executives planning their next capital investments. After semiconductor manufacturers complained loudly about Japanese "dumping" in the U.S., in the summer of 1986 Japan signed an agreement to end it. The initial effects were exactly the sort of textbook horrors any free-trader would expect. The Japanese continued to sell to the rest of the world at a price U.S. manufacturers believed was well below their average cost, creating a gray market abroad for U.S. buyers. Then, when the Japanese government encouraged cuts in DRAM production, it in effect created a cartel, a small group of producers acting in concert to control supply. Output fell and prices recovered.

Does that mean the trade agreement saved the day? Probably not. Says William McClean of Integrated Circuit Engineering Corp.: "If the agreement has had any effects at all, it is hard to distinguish them from the normal industry cycle." The increase in the yen and a predictable cyclical upturn in the industry account satisfactorily for most of the changes in prices and production since 1984. In 1985-86, with DRAM prices plunging and losses mounting, both the Japanese and the U.S. cut back spending on new factories. Since it takes about two years to put a typical plant into operation, the effect was not felt until early 1987, just as demand for DRAMs picked up. The overcapacity of 1985-86 turned into undercapacity, and prices began to rise steadily. By mid-1987, according to VLSI Research, the industry was at full capacity. DRAM producers are earning stunning profits—in May standard DRAMs that cost under $2 to make were selling in the spot market for about $10—but since 90% of the market belongs to the Japanese, they are reaping most of the gains.

Noyce of Intel figures that the U.S. is about at parity with the Japanese on production costs. This means that U.S. manufacturers can compete, and win, on manufacturing efficiency alone. But maintaining that efficiency has its price. Even IBM, which has consistently been a match for the Japanese in manufacturing, feels pressure now to keep up. "We have improved our productivity dramatically in the last two years," says Patrick A. Toole, an IBM vice president and general manager of the company's technology products division. "I don't think that put us a great leap ahead, yet it took an enormous amount of investment and invention."

Some U.S. manufacturers may now be beating the Japanese on costs. Because of the complexity of manufacturing integrated circuits and the unique qualities of many chips, precise cost comparisons are difficult. But Sporck of National Semiconductor, for one, argues that he has undercut the Japanese: "We're below them. That's not universal, on every item, but by and large we're below them."

He has witnesses. Raymond Capece, executive vice president of Lattice Semiconductor, which markets high-speed programmable chips, recently shopped for a U.S. manufacturer to fabricate his products. When Lattice looked for help making chips in 1985, U.S. companies were too expensive, so despite the drawbacks of working with a supplier thousands of miles away, it ended up with Seiko Epson in Japan. But last year, when Lattice decided to add a U.S. manufacturer, it got a bargain. National Semiconductor agreed to produce bigger silicon wafers, containing 25% more chips than Seiko's, for less than the Japanese price per wafer.

BUT IN THE LONG RUN even lower costs will not be enough. The U.S. remains no match for the Japanese in manufacturing quality, which they treat more like a religion than a business. Says Sporck: "A significant improvement will require a five- or six-year effort." A key to closing that gap, says Sporck, is Sematech, an industry consortium founded last spring and partially financed by the U.S. government. Sematech aims to improve the industry's manufacturing. Yet the consortium has made little progress toward the initial goal of building two demonstration production lines. Only this April did it move staff into its headquarters in Austin, Texas.

Sematech has a coterie of detractors. Consortiums often fall prey to mistrust among members, which rarely commit first-rank executive or scientific talent to them. Sematech's slow launch has not been encouraging. Among other things, a search committee charged with finding a chief executive for the group missed its March 31 deadline and was still looking in May. The reason, Noyce insists: "We are aiming very high, and we haven't yet lowered our sights."

A few semiconductor executives are riled because Sematech appears to be aimed at propping up the large merchant houses like Intel, AMD, and National Semiconductor while offering little benefit to smaller compa-

nies. "They've managed to get themselves a government subsidy," says T. J. Rodgers, head of Cypress Semiconductor, a modest but prosperous startup that had $77 million in revenues last year. He adds: "Only two companies with sales below $500 million have joined Sematech." The reason, Rodgers says, is that the fees, which start at $1 million a year, are too high for small companies. "I don't think our government's money should be used like that, especially when the subsidy excludes companies that are the lifeblood of the industry." To Rodgers, the lifeblood consists of companies his size, with the nimbleness to create and expand new markets.

Cypress has made its mark by adeptly using small, flexible fabrication lines to produce a plethora of products. Its San Jose facility for fabricating wafers covers about 8,000 square feet, perhaps one-third the size of a typical U.S. or Japanese clean room. Yet Cypress turns out 82 products in that facility, while the vast Japanese factories fabricate just a few types of chips in huge volumes. "We optimize the business for what Americans are good at," says Rodgers. "I like to think that those gigantic Japanese factories are like the battleship *Yamato*—so awesome that you would think there was no way to compete. But they can't hit anything that is quicker than their guns." (The *Yamato* was one of the most powerful battleships ever built when it was launched during World War II; it was sunk in 1945 by repeated air attacks from Allied forces.)

Rodgers makes no secret of his aspiration to grow Cypress into a company with $1 billion in annual sales by adding sophisticated, specialized products, each produced in relatively low volumes in his factories in San Jose and Austin. "The industry is becoming more and more fragmented," Rodgers argues. "Specialized knowledge is becoming more and more important, and the proliferation of products will continue as far as I can see."

What should worry Rodgers is that the Japanese too are pouring money into more flexible factories. While they have been unsuccessful at making the frequent changes in production lines that these factories require, recent reports suggest that NEC, Mitsubishi, and others will soon unveil a new generation of factories that will be far more competitive. Jan Vardaman, a consultant with TechSearch International in Austin, licenses Japanese technology in the U.S. and Europe. Her conclusion: "Any company that is counting on flexible manufacturing as its sole advantage over the Japanese is living in a world of fantasy."

Rodgers and most U.S. chipmakers want to avoid doing battle in the markets that the Japanese have trained their guns on. Over the past five years more than 100 U.S. startup companies have built businesses in markets too small to interest the Japanese. As their niches have grown and the companies expanded, they have had to face the Japanese more directly. Take LSI Logic, a 1981 startup that helped create the market for application-specific integrated circuits, or ASICs—chips tailored to an individual customer. ASICs are one of the fastest-growing sectors of the business; worldwide sales last year totaled some $6 billion, about 20% of the total market for integrated circuits, according to Dataquest. By 1992, Dataquest estimates, sales will total $14.7 billion. LSI Logic, which had $262 million in sales last year, is one of the two small companies aggressively supporting Sematech. Chief Executive Wilfred Corrigan finds himself surrounded by Japanese rivals who are already competitive, especially in the more commoditylike lower end of his business.

That forces him to develop ever more sophisticated products. LSI has just joined the rush to produce RISC microprocessors, which handle far fewer instructions than today's most widely used microprocessors but which execute them with blazing speed. Using this technology, LSI plans to build increasingly sophisticated semiconductors that will capture the power of a desktop workstation on a single chip. A vocal contingent of chip and computer manufacturers argue that RISC will bring about the next technological revolution in the chip business. By dramatically increasing the operating speed of microprocessors, RISC could bring to the average worker computing speeds available today only in large mainframe machines. Early versions of RISC microprocessors run at speeds four times faster than those of popular 32-bit microprocessors. Within 18 months some manufacturers hope to have prototypes that will run at least ten times faster.

Whether RISC revolutionizes the industry or not, the U.S. appears firmly entrenched as the leader in the world of microprocessors and related peripheral products, a $5-billion-a-year business. For the next few years the fiercest battle in the industry will be for control of the market for 32-bit microprocessors, the chips that power the newest personal computers. Intel and Motorola dominate this market, which will total $636 million in sales this year and could reach $1.5 billion by 1992, according to Dataquest. Motorola has a slight advantage in overall sales, but Intel's chip is at the heart of the new IBM PS/2 personal computer. Motorola has just introduced a 32-bit RISC microprocessor, while Intel has announced no plans to enter the market.

Suicidal as it seems, with the dollar's fall, a few chipmakers are even eager to go toe to toe with the Japanese once more in the manufacture of DRAMs, a $3.1 billion business last year that could reach $5.2 billion by 1991. Technology moves so rapidly that get-

The World's Biggest Chipmakers

U.S. (yellow) and Japanese (gray) companies share equally among the top 15, while Europe (green) lags behind. Only two American companies, IBM and AT&T, are as large as the Japanese, and they sell almost exclusively to their own divisions. The Japanese can sustain hefty losses in a downturn.

COMPANY	SEMICONDUCTOR SALES (in millions)	TOTAL SALES (in millions)
1. NEC	$3,240	$19,665
2. IBM	$3,100	$54,217
3. Toshiba	$2,980	$26,027
4. Hitachi	$2,560	$34,919
5. Motorola	$2,380	$6,707
6. Texas Instruments	$2,150	$5,595
7. Nat'l Semiconductor	$1,725	$1,868
8. Philips	$1,550	$26,021
9. Fujitsu	$1,450	$14,965
10. Matsushita	$1,435	$34,051
11. Intel	$1,350	$1,907
12. Mitsubishi	$1,185	$15,543
13. Sharp	$1,065	$8,314
14. AT&T	$1,000	$33,598
15. AMD	$997	$997

Sources: Integrated Circuit Engineering estimated 1987 semiconductor sales; Daiwa Securities estimated total sales for Japanese companies.

ting back into the DRAM business is no mean feat. Each generation of DRAMs holds about four times as much information as the one before. With each increase in storage capacity come new production problems. As more and more circuits are squeezed onto a sliver of silicon, the circuit dimensions shrink, demanding new generations of ever costlier manufacturing equipment. By missing a generation, a company steps off the learning curve. Recognizing that it couldn't jump back in alone, Motorola teamed up with Toshiba, a Japanese manufacturer that was already producing one-megabit DRAMs, the highest capacity on the market today.

BY KASH

A champion *of Sematech, Charles Sporck wants to overtake the Japanese in manufacturing skill.*

Motorola's decision has encouraged other semiconductor manufacturers to consider reentering. Only three firms, Intel, National Semiconductor, and AMD, have enough sales volume—about $1 billion per company—to justify spending the $200 million needed to build a fabrication line. The player seemingly most eager to suit up again is Sporck of National Semiconductor. Like most semiconductor manufacturers, Sporck looks at DRAM production as a technological testing ground for his company. The process of fabricating new generations is technically demanding; because the chips are produced in such volume, manufacturers can use them to hone their skills for making ever more densely packed integrated circuits. Says Sporck: "There is no question that DRAMs offer the ideal vehicle for making technological progress. I think it's a real disadvantage to this industry not to be in that business."

But for National Semiconductor to get back into it would require a partnership similar to the Toshiba-Motorola arrangement. And Sporck would have to be able to look out over the next few generations of DRAM development and foresee reasonable rates of return—meaning no cutthroat competition from the Japanese. "It's not a business that you can diddle with," he says. "You're all wet or you're all dry." So will National Semiconductor go back to making DRAMs? Sporck won't say. "I'm not anxious to make that decision and then come around a few years later and tell the stockholders that I'm getting out for the second time," he explains. "That would be more than embarrassing."

Ultimately Sporck's decision must hinge on his ability to raise capital. That in turn will depend on his relationships with the buyers of DRAMs—the toymakers, computer manufacturers, and others who consistently shop for the cheapest chips and don't care where they are produced. As parts of large corporate groups, Japanese chip manufacturers have a built-in demand for their chips and a dependable source of capital. Over time their sales and profits tend to be less volatile than those of independent producers.

Chipmakers and their customers have recently been talking about building stronger, longer-lasting relationships, but the pressure on the customers to cultivate such ties is strongest in times like these when critical parts are in short supply. Many semiconductor makers doubt that much will come of chip users' new willingness to discuss long-term contracts. But Sporck notes a change in the environment that could make the difference: "We've never been in a period like this. For the first time U.S. electronics companies are dependent on their Japanese competitors for DRAMs. I don't think anybody will feel comfortable with a situation where their competitor has the ability to shut them down."

Japan's large, vertically integrated companies can invest heavily and accept low rates of return for long periods in order to gain market share. IBM and AT&T can match the investment if necessary, and niche chipmakers can simply avoid competing with the Japanese. But other large U.S. merchant manufacturers, particularly Intel, AMD, and National, cannot avoid some direct Japanese competition and probably don't have the stamina to withstand it.

ONE SOLUTION is for American chipmakers to be acquired by their customers, forming integrated entities like their Japanese competitors. But except for IBM and AT&T, the biggest U.S. companies have shown little ability to compete in semiconductors. A host of them, including GE and RCA, fell victim to scrappier competitors. Says Gordon Bell of Ardent Computer, onetime vice president of engineering at Digital Equipment Corp.: "If the solution is that you've got to be big to compete with the Japanese, forget it. The only thing that is keeping America strong are these wild startup companies."

Another solution is equally foreign to U.S. companies: expanded industrywide cooperation. With the cost of building new fabrication facilities soaring, the industry could benefit from sharing factory space. Sematech may help, but the real barrier to further action is the mistrust of other companies built on years, even decades, of competition. Quite apart from possible antitrust problems, it appears easier for Motorola to bring itself to team up with Toshiba than for two U.S. competitors to share a factory.

The industry probably won't solve its structural problems, which will undermine its ability to compete—especially in the next downturn. The Japanese may have learned a lesson from the last semiconductor recession. But the Koreans and Taiwanese, among others, remain unschooled. They may be willing to pay the tuition necessary to gain a major place in the business—even if that tuition includes big losses in price wars. ■

JAPAN'S CARMAKERS TAKE ON THE WORLD

They have solved their yen problems faster than anyone imagined they would, and could pass the U.S. and Europe in the global auto market by the end of the 1990s. ■ *by Alex Taylor III*

THE SIGHS of relief around Detroit are almost palpable. For the first time since the Japanese upset the comfortable oligopoly of U.S. automakers in the early 1970s, events seem to be going against them. At import showrooms, sales are lagging as car buyers register sticker shock. A compact four-cylinder Honda Accord carries a $16,245 price, nearly $2,000 more than a full-size V-6 Buick LeSabre. Dealers are offering cash rebates on Japanese models for the first time ever. American cars, meanwhile, are better looking and better built than ever before. General Motors, Ford, and Chrysler are starting to think they can win back for keeps some of the market share they began losing 15 years ago.

Not so fast, Detroit. By squeezing margins and driving down costs, the Japanese have licked the problem of the expensive yen faster than anyone thought possible. Within 18 months they will be building 1.4 million cars in the U.S., more than Chrysler produces, and tackling the very heart of the domestic market with Taurus-size family sedans. Five years from now the Japanese are likely to control as much as 35% of U.S. car sales—up from 28% today and only 8% 12 years ago. That would make the Japanese collectively as big as GM.

Volkswagen, Renault, and Fiat had better watch out too. The Japanese are on the move in Western Europe, where they have a big edge in manufacturing productivity and product quality. Meanwhile, they retain a stranglehold on business in their home country, where overnight the formerly stagnant auto market has turned into a barn burner.

Others aspire to the title, but, led by Toyota and Honda, the Japanese are on their way to becoming the first truly global automakers. By 1992 they will be about even with U.S. and Western European manufacturers in share of world auto production (see chart). Since they are adding production while North American producers cut back and the Europeans grow slowly, the Japanese will be producing more cars than anyone else by the end of the decade.

High-tech, ***human touch***

Rivals around the world are in disarray. General Motors, which sold 18% of the world's 43 million vehicles last year, is preoccupied with problems in North America. It has generated precious little synergy from its big European subsidiaries, Vauxhall and Opel. The world's No. 2 automaker, Ford, is red-hot right now and more globally integrated than any other non-Japanese company. But it can stumble when it tries to market a car line on different continents, as its disappointing experience selling the German-made Merkur in the U.S. demonstrates. Europe's Big Four—Volkswagen, Fiat, Renault, and Peugeot—haven't seriously lifted their horizons beyond the Common Market's borders.

Nor are the Japanese threatened seriously by manufacturers from South Korea and other newly industrialized nations, widely predicted just a few years ago to be the coming wave of low-cost producers. After only two years in the U.S., Hyundai has become the big power in the under-$8,000 segment; it should sell 300,000 cars in 1988. But quality problems and a technology gap will hurt Hyundai as it expands its base. Automakers in Brazil, Malaysia, Yugoslavia, and Taiwan, trying to duplicate Korea's success, are several years away from making a dent.

Japan's latest lesson in world-class competitiveness is its aggressive handling of *endaka*—the expensive yen, which has risen 72% in value since October 1985. Over the same period, the Japanese raised their car prices only 30%, while Detroit was hiking *its* prices by about 12%. Says Robert R. Reilly, Ford's executive director of corporate strategy: "We have been surprised, though not shocked, by their ability to absorb price increases. Anybody who counts the Japanese out when they hit a rough patch is kidding himself."

How did the Japanese manage it? Raw materials used in production, such as oil and plastic, are priced in dollars and have declined in cost when translated to yen. U.S. distributors and dealers have been shaving their gross profit margins, which account for some 30% of the typical car's price. Instead of charging as much as $3,000 over the sticker, as they did for some Honda models until as recently as this year, import dealers began offering discounts.

What surprised Detroit most was how successful the Japanese have been in cutting production costs. Nissan, plagued by falling sales both in Japan and the U.S., has worked especially diligently. It knocked its operating costs down 20% last year and has targeted hits of

Offshore production: *Honda makes engines as well as cars in the U.S. By 1991 these uniformed "associates" in Anna, Ohio, will be turning out 500,000 engines annually.*

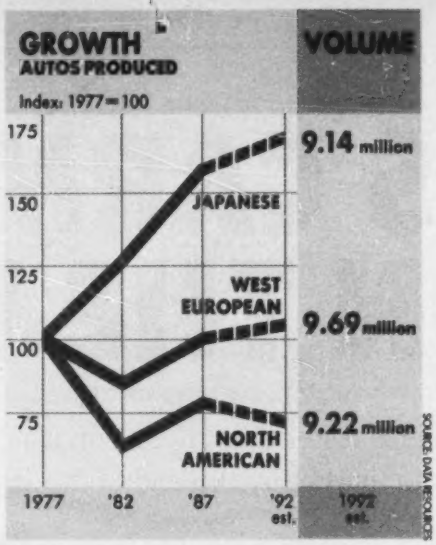
PHOTOGRAPHS BY OVAK ARSLANIAN

17% this year. Nissan sent 5,000 central office workers out to its dealerships to sell cars and made dozens of *kaizens*—continuous cost improvements in manufacturing. Says Maryann N. Keller of Furman Selz Mager Dietz & Birney, a New York brokerage firm: "The Japanese are right now reevaluating every single facet of doing business to become more efficient and build better cars."

The process should keep them competitive despite further strengthening of the yen. The WEFA Group, a Pennsylvania forecasting firm, sees the yen, 125 to the dollar recently, reaching 110 by the end of this year and continuing to strengthen until it hits 105 in 1993. Nonetheless, WEFA estimates that the Japanese cost disadvantage bottomed out last year. It expects the price gap in compact models to shrink from $1,967 per car in 1987 to around $1,000 by 1990.

That is still a huge difference, but Japan's automakers are compensating by extending their product line into costlier vehicles with more features, where price is less of a factor. Their strategy is to offer more car per car than anyone else, both by developing new technologies and by improving existing products. Honda is a master of the process even among the Japanese. The company employs 50% more engineers per car produced than GM. Because Honda builds only ten model lines, against 47 for GM in the U.S. alone, that engineering talent can be more directly focused.

Honda stays ahead by completely renewing its cars every four years. Ford, by contrast, has kept the subcompact Escort in production essentially unchanged for eight years. Honda also makes a fetish of technical improvements. It has been adding costly "double wishbone" suspension to its cars to provide slightly better handling. Detroit's bean counters would surely not approve, since few average drivers notice the change. But through an accretion of such refinements, Honda has put its cars in a class by themselves.



Going Nowhere but Up

Manufacturing around the globe, Japanese automakers are fast catching up with their European and American rivals.

This approach helps explain how Honda defied conventional wisdom to pull off the marketing triumph of the 1980s with the $25,000 Acura Legend. When Honda introduced the car in 1986, the Japanese were so associated with economical compact-size models that experts figured they would find it impossible to market luxury cars. By 1989, 350 U.S. Acura dealers are expected to sell more than 150,000 cars annually at prices from $15,000 to $30,000.

Toyota and Nissan will leap another couple of steps up the price ladder in 15 months when they launch two car lines with a top sticker of around $35,000: the Toyota Lexus and Nissan Infiniti. Like a new Acura sports car also in the planning stages, these will be closer to BMWs and Mercedes than they are to other Japanese cars. The most expensive Infiniti is so big and powerful that it may even carry a gas-guzzler tax.

At the lower ends of the Lexus and Infiniti lines will be $20,000-plus V-6–powered models that could be far more significant than the bigger cars for the future of Japanese autos in America. They look like an opening wedge into the highly profitable heart of the U.S. car market: family sedans and midsize coupes, a segment that GM owned for years until the success of the Ford Taurus. Says James Mateyka, a vice president of the Booz Allen Hamilton consulting firm: "The Japanese represent a real threat in the intermediate class."

ONE IMPARTIAL SIGN of the Japanese mystique is the price their products command in the used-car market. IntelliChoice of San Jose, California, has published a detailed guide to the ownership costs of 700 different models. It found that only four brands retain more than 70% of their value five years after they were purchased: Porsche, Honda, Toyota, and Jeep, now owned by Chrysler. Mazda finished just behind Mercedes-Benz with 68%, and Nissan recorded a 62% residual value. Chevrolet, the highest-ranking American passenger car, kept only 59%.

Japan's mastery of manufacturing helps explain its advantage. In the most far-reaching study of its kind, John Krafcik, a consultant to MIT's International Motor Vehicle Program, measured productivity and quality at 38 automobile plants around the world

THE HIGH PRICE OF BEING JAPANESE

In this case it's about $6,000 for cars that are basically similar. Both are four-door sedans with the same length and height; the Taurus is four inches wider. Though different dealers cut different deals, each car typically sells for about $2,000 less than its sticker price in today's market. To knock $790 off the Toyota's price, delete the sunroof option.

during 1987. Krafcik looked at employment and output levels at each plant and then adjusted the results to take into account the complexity of the product and the number of parts that were made on the site. He found that the average Japanese plant is 39% more productive than Detroit's, and an astounding 88% better than the average factory in Western Europe.

Not coincidentally, the Japanese also built the best cars. Using data from the 1987 U.S. owners' survey by California's J.D. Power & Associates, Krafcik developed an index that measures assembly quality in such key areas as body integrity, paint quality, and electrical connections. He found that Japanese brands sold in the U.S. averaged 44 assembly defects per 100 cars, while Detroit's had 87 and European cars sold in the U.S. had 90.

Though the ingredients of the Japanese manufacturing system that produces these results are numbingly familiar by now, they remain difficult to emulate. At the system's core is a culture in which the assembly line workers maintain their machines, ensure the quality of their work, and improve the production process. Detroit is catching up—two Big Three plants outproduce the average Japanese facility—but some deeply embedded advantages keep the Japanese ahead: a dedicated supplier network producing top-quality parts, easy-to-build product designs, and a well-educated work force.

The Japanese production system is so refined that it is difficult for even the Japanese to duplicate. Their North American plants are not as good as the home factories, though they are still better on average than Detroit's. Take Honda's five-year-old plant in Marysville, Ohio, a production engineer's fantasy come true. Manned by young, energetic, white-uniformed "associates" of both sexes who practically whistle while they work, it will pump out 360,000 Civics and Accords this year, making it one of the most productive auto plants in the world. Yet Marysville cars, which contain 60% U.S. parts and labor, have twice as many assembly defects as Japanese Hondas, according to Krafcik.

HONDA DISPUTES Krafcik's findings. It contends that his data are out of date and based on too small a sample. But Honda and other Japanese manufacturers also complain that they have to make up for the poor quality of parts produced by U.S. suppliers. Says Shoichiro Irimajiri, president of Honda of America: "We have had bad news about quality and delivery. Most of our suppliers are stable now, but some are struggling." In a few cases, Irimajiri says, prototype parts were fabricated in one plant, but production runs were made in another factory, resulting in uneven quality. U.S. suppliers had difficulty reading Honda blueprints for advanced jigs, dies, and tools.

Some Japanese automakers have been urging their key suppliers, which they often own wholly or in part, to set up shop in the U.S. Says Jay Chai, the New York–based executive vice president of C. Itoh, the big Japanese trading company: "The automakers have been spoiled by their suppliers. They can't duplicate the quality they get in Japan." Some 60 Japanese parts makers have already located in the U.S.; by 1990 there may be as many as 150.

Their arrival has alarmed American competitors. Says Lee Kadrich, the director of government affairs and international trade for the Automotive Parts and Accessories Association: "These migrant plants are likely to displace American parts firms' sales to domestic carmakers."

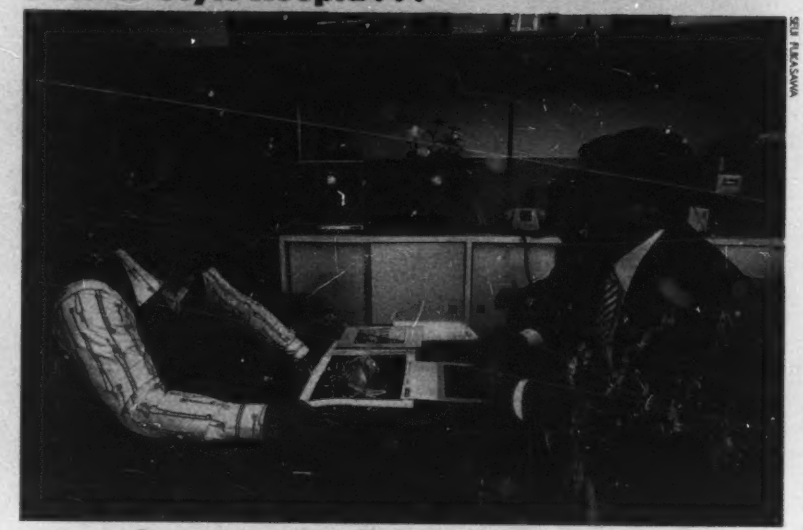
The suppliers' alarm turned to fear when Bridgestone agreed to buy Firestone this spring for $2.6 billion. Paul Anderson, a Booz Allen senior vice president based in Chicago, says that at least one Japanese automaker is looking for small U.S. suppliers it can buy and control. No purchases have been announced so far, but it does not take an astrologer to figure out what the future holds.

One reason is that the future for Japan's auto industry lies in producing cars in North America and Europe. No Japanese automakers have declared plans to build more plants in the home country. Nor, despite widespread expectations to the contrary, will they soon try to supply the world from newly industrialized countries. At Honda, which has built motorcycles in 30 different countries, North American President Tetsuo Chino warns that the benefits have been exaggerated. "If you see the cost of production in those countries, it is not too advantageous to manufacture there," he says. Good suppliers are even harder to find in the NICs than in the U.S. Further costs are imposed

REPORTER ASSOCIATES *Sally Solo and H. John Steinbreder*

ROBERT WALLIS—SIPA PICTURES

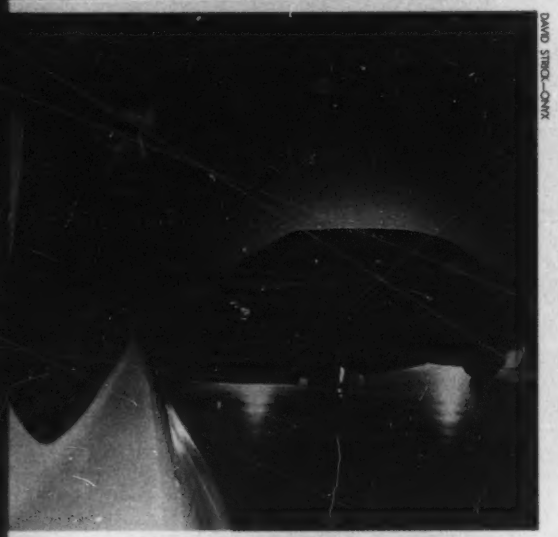
Detroit-Style Hoopla . . .



SEIJI FUKASAWA

. . . vs. Japanese Traditionalism

In Japan's hot auto market, American selling techniques are vanquishing the old ways. Salesmen still call on customers at home or in the office, but more buyers are heading for showrooms, and new cars, such as this Toyota Carina, get glitzy kickoffs.



DAVID STROCK-OMNI

The top American *at Nissan, Thomas D. Mignanelli, hopes that new models like this coy 240SX will reverse a slide in market share.*

by local regulations, the need to develop a skilled work force, and transportation to distant export markets.

Toyota, the world's third-largest automaker, is on the cusp of a big expansion in the U.S. Next to its Georgetown, Kentucky, factory, where it will begin this summer building 200,000 midsize Camrys annually, sit 1,500 empty acres. They would make a good location for a truck plant; sales of trucks imported from Japan have been decimated by the effects of price hikes on top of a 25% tariff. Toyota could also take over the lion's share of the 240,000-vehicle capacity at its Fremont, California, venture well before 1996, when its agreement with GM expires. The Corolla assembled there is far more popular than its GM counterpart, the Chevrolet Nova.

By 1991, Japanese automakers will have their names on North American plants with a capacity of nearly 2.4 million vehicles. Close to one million will be produced in factories operated as joint ventures with U.S. automakers, so their products may carry either Japanese or American nameplates. But the 1.4 million purely Japanese cars will be equal to 17% of last year's U.S. production.

As GM has learned to its chagrin, having the capacity to build cars is not the same as being able to sell them at a profit. The trick is matching production with the market. Even with demand for imports slack, Toyota and Honda are selling all the cars they can make in America or export to the U.S. under their "voluntary" import quotas. Since it is short of cars, Toyota still has about the same number of dealers it had eight years ago. If the quotas are removed next April, as Japanese government sources now suggest they will be, the auto companies will still have a strong incentive to produce in the U.S. With the yen below 130 to the dollar, Honda can build a car more cheaply in Ohio than in Japan. Within 30 months it expects to be exporting 70,000 cars a year from the U.S. to Japan and Europe.

Import restrictions are now propelling Japan's automakers toward building in Europe, just as they did in the U.S. seven years ago. The Japanese compete formidably by exporting to such Common Market countries as the Netherlands and West Germany, where they have relatively free access. But in France their cars are "voluntarily" limited to 3% of the market. A post–World War II treaty with Italy originally designed to prevent *Italian* cars from flooding *Japan* limits them to only 3,000 vehicles per year. So the Japanese are effectively restricted to the 11.3% of the European market they achieved in 1987, which still put them ahead of Renault and GM Europe.

When the Common Market nations lower their intercountry trade barriers in 1992, the Japanese are likely to find new roadblocks to free trade replacing the old ones. As one Common Market official warned in an April speech in Tokyo: "Japan sells nearly 1.2 million cars to the EEC while importing only 97,000. We want to see an improvement in that trade balance."

The Japanese are already mapping out the obvious solution, and it offers little solace for Fiat, Peugeot, et al. Nissan has started up a plant in Britain with a capacity of 200,000 vehicles; Toyota and Honda are said to be looking for sites. Europe's hothouse automakers are vulnerable. Consultant Krafcik points out that their plants are not only the least productive in the industrial world but also make the narrowest ranges of products.

IT WILL DOUBTLESS take the Japanese years to crack local loyalties in Europe, but while they're waiting they can subsidize overseas operations with suddenly fat profits at home. Reduced incentives to save, low interest rates, and a booming economy have lit a fire under the once-stagnant Japanese auto market. New-car sales are expected to rise 8% or more this year on top of a 7% advance in 1987. Per capita car ownership in Japan is only half as much as in the U.S. Even given Japan's claustrophobic highways, there is ample room for growth. A Nissan sales executive, interviewed by FORTUNE in Tokyo, said he expects the Japan boom to continue for four or five more years.

The biggest gainers have been luxury models, up 145% this year. Nissan has doubled production of its new $40,000 Cima to 7,000 per month. Says Morgan Stanley vice president Scott Merlis: "The Cima has become the 'in thing' to drive to the golf course, where memberships average more than $100,000." Imports are growing fast too, up more than 40% last year from a minuscule base of 3.1% of the market. By 1998, according to the Mitsubishi Research Institute, im-

READY FOR A $35,000 TOYOTA?

That will likely be the sticker price of this Lexus model when the line is introduced 15 months from now. As the artist's rendering suggests, it is unlike any Japanese car ever seen before, with its extreme aerodynamic shape and potent V-8 engine. Like its philosophical predecessor, the Honda Acura (and its competitor, the Nissan Infiniti, which will also debut in late 1989), the Lexus will be marketed through a separate dealer organization. The Japanese chose their lofty price points carefully—higher than entry-level Mercedes and BMWs, but several thousand dollars below the German middle-of-the-line models. No Lincoln costs more than $30,000; Cadillac's $56,000 Allante has been selling slowly.

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COMPETITION

ports will account for 15%. Together, Toyota and Nissan control 70% of Japanese car sales, though Nissan has lost five share points over the past decade while Toyota has gained eight. Honda has doubled its market share in the same period, putting it in third place with 11%. The dominance of these three makes it unlikely that Japan will end the 1990s with nine independent auto companies.

THE JAPANESE VERSION of the mating game is figuring out how the other six automakers will sort out. Current ownership patterns suggest one direction. Toyota owns 15% of Daihatsu, and Nissan 5.8% of Fuji Heavy Industries (Subaru in the U.S.). Mazda, weakened by a brush with near-bankruptcy in the mid-1970s and hampered by a narrow product line, is 25% owned by Ford. GM owns 41.6% of Isuzu and 5.3% of Suzuki; both companies supply cars to GM for sale as Chevrolets. If GM does not buy them outright, they could merge.

Are the Japanese invincible? Well, not quite. Ford's Probe, praised for its racy styling and backed by Ford's dealer body, is selling much better than the Mazda MX-6, a mechanical twin that is produced alongside it in Flat Rock, Michigan. And then there is troubled Nissan. Its cars are nearly the equals of anyone's in quality and technology, but its U.S. sales fell 25% last year and have dropped another 18% this year. Nissan's image blurred when it began phasing out the Datsun brand seven years ago. Honda's success and a line of dated-looking cars forced the company into the also-ran category.

To recoup, Nissan has reorganized its North American operation and hired Thomas Mignanelli, 43, a Lincoln-Mercury sales pro, to get it back in sync with U.S. car buyers and accelerate what Nissan President Kazutoshi Hagiwara calls the "Americanization of Nissan." Over the next year it is launching four new models. Security analysts who have seen pictures of the new cars praise them, but whether Nissan can sell them remains a question mark.

Events have a way of breaking in favor of the Japanese. When the second oil crunch and double-digit inflation hit in the late 1970s, they had cheap, economical cars to sell. When the yen burst through the roof, they had U.S. factories ready to go. But success, as we all know, goes to those who make their own luck. As they have proved by staying competitive in a ruinous currency environment, the Japanese will continue to make headway regardless of how the breaks fall in the future. ■

REPORT CARD ON THE BABY BELLS

Going on five years since AT&T's breakup, BellSouth gets an A+, Pacific Telesis is most improved, and Nynex isn't living up to potential. The others? Read on. ■ *by Kate Ballen*

IF YOU THINK twins have identity problems, imagine what it's like for septuplets. The regional Baby Bell companies, which took over local telephone service when the government broke up American Telephone & Telegraph, have poured more than $1 billion into advertising since their birth in January 1984. Yet few who press the Touch-Tone buttons know the phone companies behind them. The Bells seem to share a cookie-cutter similarity and the uniformly boring management that goes with regulated monopolies. Those perceptions are wrong. Ma Bell's offspring already display strong—and growing—differences.

"The three D's are what distinguish them," says Joel Gross, a security analyst at the Donaldson Lufkin & Jenrette brokerage firm. He refers to demographics, deregulation, and diversification. Some of the Bells, serving regions with booming economies and sympathetic state utility commissions, have been luckier than others. All have used their rich cash flows to buy nonregulated businesses—cellular phone networks, computer stores, and real estate—but their acquisitions have ranged from brilliant to bumbling. In running the good old reliable phone business, too, some have made a more impressive showing than others.

The seven Bells began life with silver spoons. Each inherited an average $17 billion in assets when 22 local phone companies were divvied up among them. "They are seven of the strongest companies you'll ever see," says Jack Grubman, a security analyst with Paine Webber. "They are just like cash registers." Every one ranks among the top ten on FORTUNE's annual list of the 50 largest utilities. Revenues last year ranged from $8 billion at Southwestern Bell to BellSouth's $12.3 billion.

These titanic tots get their handsome, steady income from providing local phone service to some 80% of the U.S. population. The Bell managements have diligently cut costs, trimmed staffs, and pared debt. In 1987 the regionals together earned $8.4 billion on total revenues of $69.8 billion. Former parent AT&T, left with the competitive long-distance part of the phone business, plus the manufacture of telecommunications equipment and a money-losing computer business, earned only $2 billion on $35.6 billion.

Far from being content with their enviable lot, the Bells chafe like toddlers kept in a playpen. Most states set a limit on how much they can earn, based on their total debt and equity. Nearly all the companies have reached their allowed rate of return, which currently works out to 12% to 16% on equity. Thus much of the growth in basic phone earnings must come from increases in the capital base on which earnings are figured—more switches and lines—rather than through gains in efficiency. While earnings from productivity gains that exceed the ceiling may go unchallenged by utility commissions for a while, they ultimately tend to go back into customers' pockets via lower phone rates. "We have our hands tied behind our back," says Zane Barnes, CEO of Southwestern Bell. "We can't reach our potential." Adds David Wenner, senior partner with the McKinsey & Co. management consulting firm: "There just isn't enough incentive for a company to be efficient or stick its neck

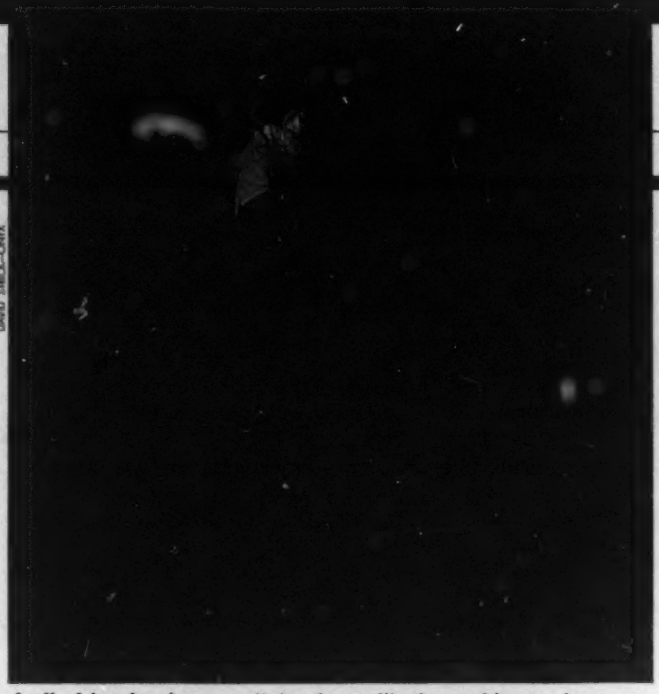
OVAL ARSANIAN

This Nynex center *in Manhattan monitors phone traffic, the Bells' biggest moneymaker.*

REPORTER ASSOCIATE *Edward Prewitt*

out with new technology."

The Bell Seven have been crying for freedom, and some of the states have begun to listen. About half are considering or have already instituted changes, including one that would cap phone call charges rather than the companies' earnings. "Why should the state care about the company's profit if prices are fair for the consumer?" says Philip O'Connor, former head of the Illinois commission. Nebraska has already removed most of the earnings caps on U.S. West's phone business. New York has instituted a system in which the phone company and customers share excess earnings: Nynex gets higher profits, customers get lower prices. Sometime this fall the Federal Communications Commission, which regulates the Baby Bells' calls across state borders, will decide whether to substitute price caps for earnings restrictions. Says Gerald Faulhaber, professor of public policy and management at the University of Pennsylvania's Wharton School: "Unless you remove these restraints, shareholders won't benefit from efficiency and market opportunities."



DAVID STOCK—ONYX

A climbing business: *cellular phones, like the one this consultant uses*

THE BELLS haven't sat back waiting for the shackles to loosen. "We have to get into nonregulated businesses to really grow," says Thomas Bolger, CEO of Bell Atlantic. Such businesses, scooped up in waves of acquisitions, now account for 7% to 15% of the regional companies' revenues.

The biggest profit maker is a business the Bells had all along—the yellow pages directories, which states regulate more loosely than phone service. Total publishing revenues for the seven companies hit a record $5.5 billion in 1987, according to Communications Trends, an advertising research company in Larchmont, New York. All the siblings are believed to be making money on the yellow pages despite competition, some of it from interloper Bells based elsewhere. A few special editions have been flops. Southwestern Bell just shut down Silver Pages, an advertising directory for the elderly. But as far away as Israel and Australia, residents can let their fingers do the walking in the company's local directories.

In the boldest venture beyond their traditional business, the Bells have shelled out more than $5 billion to buy and set up cellular telephone companies. With a cellular phone in a car or in the hand and linked by radio to transmitters dotted in a mosaic of overlapping "cells," a customer can stay in touch throughout a metropolitan region. Last year Southwestern Bell put down $1.4 billion for Metromedia's vast paging and cellular operations in New York City, Chicago, and elsewhere. And in February, BellSouth offered $710 million in stock for Mobile Communications of America, which has operations in the car-crazy Los Angeles and Houston areas. The Federal Communications Commission awards two licenses in every market. One is reserved for a local phone company, the other for a "nonwire" company, which later could sell out to a Bell company.

"Cellular makes a lot of sense for the Bells," says Robert Morris, a telecommunications analyst with Prudential-Bache Securities. "They understand the technology, and besides, it has to do with phones." Dataquest, a California technology consulting firm, foresees some three million subscribers by 1992, vs. one million today, and annual revenues of $6.6 billion, up from $1.4 billion. But don't expect a phone in every car until prices fall. Currently subscribers pay a fixed charge of $25 to $35 a month, not counting equipment that typically costs $1,500, plus 17 cents to 33 cents per minute on local calls. While the state utility commissions oversee cellular operations, they have not placed any caps on earnings or prices. So far there hasn't been much earnings to put caps on, though most Wall Street analysts expect a big future payoff. Says James McCabe, a security analyst with Nomura Securities: "Although many of the wire companies are already profitable, it is going to take a few years before anyone sees a lot of black ink in cellular."

OFFSPRING THAT OUTPACED THE PARENT

COMPANY	AVERAGE GROWTH RATES		
	Three years through 1987		TOTAL RETURN Four years through 1987
	REVENUES	PROFITS	
[illegible]	[illegible]	[illegible]	[illegible]
Bell Atlantic	**8.4%**	**8.4%**	**26.9%**
[illegible]	[illegible]	[illegible]	[illegible]
Pacific Telesis Group	**5.3%**	**4.6%**	**25.6%**
[illegible]	[illegible]	[illegible]	[illegible]
American Information Technologies	**4.5%**	**6.2%**	**26.0%**
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	2.4%	14.3%	12.8%

The Baby Bells have rung up revenue gains and investors' total returns at a faster average yearly rate, compounded, than AT&T. The latter, playing catch-up, has enjoyed steeper profits growth.

YET THE BELLS have not found diversification to be a growth elixir. Not until 1987 did one of the regionals—Bell Atlantic—break out its profits from nontelephone businesses. Even so, it recently unloaded a loser, its 16-store chain of computer stores. Pacific Telesis Group also just sold some of its computer stores and paging operations. "Intelligent diversification is important," says security analyst Edward Greenberg of Morgan Stanley. "But it pales in comparison with the enhanced growth that could come from the phone network as more deregulation occurs." Says Liza Draper, program director with the Gartner Group, a technology con-

sulting firm in Stamford, Connecticut: "I just don't see them making much of themselves in businesses that don't have synergy with their network."

Most Bells see scads of synergy in businesses that are off limits. Federal Judge Harold Greene, who continues to preside over the AT&T breakup he approved, doggedly prohibits the Bells from moving into the long-distance business, with revenues of about $50 billion a year, and telecommunications equipment manufacturing, worth $25 billion.

The regionals find it especially galling that they can't tread on Ma Bell's long-distance turf. After all, she and other long-distance carriers such as US Sprint and MCI Communications cut into local phone companies' revenue when big corporate customers bypass local lines with microwave transmitters and other high-tech paraphernalia to make long-distance calls. Last year about 25% of the Bells' revenues came from fees long-distance carriers paid for local connections. When big phone users bypass the local network, the Bells get no fee.

The bypass argument is overstated, however. No company bypasses the Bells completely, and the practice seems to be increasing more slowly than in the past. "The issue of bypass is practically passé," says Edward Diamond, project manager with Eastern Management Group, a New Jersey consulting firm. Bypass may cost the regionals about $500 million a year in revenues. But, says Diamond, "it just has not been as big a problem as the Bells expected."

JUDGE GREENE has not been deaf to the Bells' pleas for easing the original breakup restrictions. Most recently he gave them the green light to transmit electronic information, such as databases like Nexis and recorded voice messages. Database transmission will probably be a Bell ringer: The volume is tremendous. But the regionals got less than they wanted, since they can only transmit databases, not own and develop them. Says William Weiss, CEO of American Information Technologies (Ameritech), which provides local service in the Middle West: "Why doesn't Greene just take off the wraps and let us evolve as we can?"

Though the Bells were conceived as equals, those with the fastest-growing populations and strongest economies have led charmed lives from the start. Favorable geography alone explains much of the balance-sheet strength of BellSouth, Bell Atlantic, and Nynex. It also helps to have a densely populated territory, such as Nynex's or Bell Atlantic's, where the investment in phone lines per customer is less than in the wide open spaces. A heavy proportion of business customers is also a plus. The average executive talks on the phone 59 minutes a day, according to Eastern Management Group. The typical residential customer gabs less and does much of it at night, when rates are low.

BellSouth, serving nine Southeastern states, is the heavyweight with the most assets ($27.4 billion) and profit ($1.7 billion). "It was an accident of birth that we were blessed with being a Sunbelt company with good growth," says CEO John Clendenin. Two of the fastest-growing states, Florida and Georgia, are included in his fiefdom,

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which helps explain why BellSouth boasts the most impressive earnings record among the regionals.

The business was already highly efficient when BellSouth took charge. The Southeast phone companies were AT&T's guinea pigs for testing such technology as fiber-optic transmission, and BellSouth has remained a technology leader.

Bell Atlantic, also favored with vigorous local economies, has run neck and neck with BellSouth for first place in revenue growth. This $10-billion-a-year company, which rules from New Jersey down to Virginia, is one of the most aggressive diversifiers among the siblings. "They are the first company to really prove you can have a wide-reaching and profitable diversification program," says Stephanie Georges, a security analyst with Salomon Brothers.

Within 15 months of AT&T's breakup, Bell Atlantic announced it was buying the chain of computer stores it now has sold. The shopping binge goes on. The company has picked up a large computer maintenance business, a software designer, and a financial services company. The unregulated businesses are growing 25% to 30% a year in profits. Bell Atlantic has disclosed that in 1987 its unregulated businesses earned $47 million before taxes, on revenues of $877 million. "By the end of 1991 we see ourselves as a strong industrial corporation with a utility core," says CEO Bolger. By then, he adds, half the company's revenues will come from unregulated businesses.

Bolger clearly does not suffer from the overcautious mentality of AT&T executives summed up by the widely used term Bell-shaped head. "Bolger is more willing to stir the pot," says Jack Grubman of Paine Webber. "He is a risk taker."

NYNEX, which serves hordes of chatterers in New York and Boston, has rung up the group's second-highest profit growth and highest total return to stockholders. The company's domain—New York plus New England—also boasts the largest number of business phone lines among the seven: ten million. But Nynex is not taking full advantage of its inheritance. "Nynex has the greatest potential to benefit from a more efficient operation," says Lap Lee, a security analyst at Salomon Brothers. "Until recently it really hasn't focused on replacing old technology or been as dramatic as some others in bringing down the head count."

The 1986 purchase of IBM's 31-state chain of computer stores for some $150 million could make Nynex's numbers worse. "It was their single dumbest decision," says Grubman of Paine Webber. "Even IBM could not make the stores profitable." But CEO Delbert Staley says he's not running the same business IBM got rid of. His stores have expanded their offerings to include various makes of computers and telecommunications equipment for business customers, he says, and are giving Nynex a national image. Staley estimates the chain will be profitable by next year.

Fate was less kind to Southwestern Bell, U.S. West, Ameritech, and Pacific Telesis. The first three have suffered from regional economic blues, the last from a history of harsh regulation. Half of Southwestern's

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phone business is in down-and-out Texas. U.S. West has the high cost of maintaining miles and miles of wires through empty cowboy country in its 14 states.

Ameritech, hobbled for a time by the Rust Belt recession, has overcome its disadvantaged start. "We have a fairly straightforward success story," says CEO Weiss, who is fairly straightforward himself. "We reduced our operating costs right away." These moves, plus a tight lid on spending for diversification, have paid off. Ameritech has been the champion Bell in return on shareholders' equity for four years running.

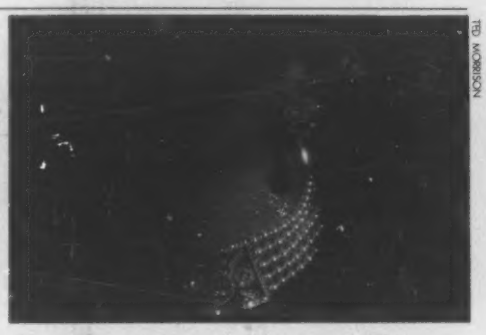
Pacific Telesis gets the award for the most improved. At birth this company was burdened with much obsolete equipment as well as a negative cash flow and the Bells' highest debt load. The financial weakness was a legacy from tough California regulators. "We've managed to pick ourselves off the ground," says Sam Ginn, who has just taken over as CEO. Pacific Telesis laid off employees, reduced debt, and modernized with a vengeance. The first Bell to plunge headlong into the cellular business outside its region, Pacific Telesis is now in four of the top ten markets, including Dallas and its own Los Angeles. "At first we thought the mobile phones would just be a status service," says Ginn, who spearheaded the acquisitions. "Now we are seeing cellular antennas even on the backs of Pintos."

IN ONE respect the Baby Bells differ hardly at all. From Ameritech to U.S. West, all get A's for service over the past four years. Customer surveys by the FCC and the U.S. Telephone Association, an industry group, show that the quality has not deteriorated since divestiture. Local phone costs, however, have gone up 35% on average. That's mainly because local service is not as heavily subsidized by the long-distance business as it was before the breakup.

The Bells can be expected to grow further and further apart. Before too many years they may be able to offer competitive services over the phone lines, including databases of their own, and even cable TV transmission. The time could come when the Bells find themselves in a competitive free-for-all with Ma and each other for long-distance phone accounts and equipment sales. "Whether they will be mature enough to do really well in an open market has not yet been put to test," says Wharton School's Faulhaber. Meanwhile the septuplets talk as though they can't wait to take the next exam. F

COMPANIES TO WATCH

Carolee Designs Inc.


TED MORRISON

These fakes—choker and earrings—cost $230.

■ By picking up on fashion trends quickly, Carolee Friedlander has built a $16 million jewelry company in 12 years. Many of Friedlander's designs steal their styles from the past: the insignia of Britain's Royal Navy, the art deco movement, and the Duchess of Windsor's collection. This stuff looks real, though made of crystal and plated gold, silver, and platinum. Able to produce a new piece in only three weeks, privately held Carolee was the first company to imitate the famous Windsor jewels after the Duchess's trove was put up for auction last year. Most of the baubles go for $50 to $200 each, or about $2,000 for an entire collection. That may seem pricey, but it's still far from the $50 million that the Duchess's jewels commanded.

Continental Medical Systems Inc.

■ While many of America's private hospitals suffer a surfeit of empty beds, patients fill up the few facilities that specialize in rehabilitative medicine. Demand is surging as the number of disabled Americans keeps rising: More of us are living to an infirm old age, and emergency medicine is keeping accident victims alive longer. Founded in 1986, Continental is quickly becoming one of the largest companies in the fast-growing field. The Pennsylvania-based company's biggest business is operating four hospitals where teams of physicians and physical and occupational therapists help the victims of accidents, strokes, heart attacks, and neurological disorders to come back from their disabilities. This year Continental began building nine new rehabilitation facilities. The prices that patients pay are lower than at acute-care hospitals because the specialized units have less overhead. Financial analyst Peter Grua from the Alex. Brown firm thinks Continental's earnings will grow 200% this year to $5 million on revenues of about $110 million. The stock sells at 15 times his fiscal 1989 earnings estimate.

Jackpot Enterprises Inc.

■ Jackpot wins by betting on Americans' penchant for gambling. With about 1,600 electronic games of chance in 145 supermarkets, drugstores, and discount stores in Nevada, it is one of the largest owners of slot, poker, and blackjack machines outside the big casinos. In 1987 Jackpot's machines averaged over $17,000 for the house, well above the fixed fee Jackpot pays to lease space for its electronic banditos. Earnings increased 55% to $3.3 million in the year ended June 30, 1987. Paine Webber security analyst Lee Isgur recommends the stock, which trades on the NYSE at around $12.50, about 12 times expected earnings. Says he: "It's a money machine. Nevada is one of the fastest-growing states, and the state's gaming industry has grown at a rate of 12% annually for the past 40 years."

Advanced Marketing Services Inc.

■ This bookseller is piggybacking on the rapid expansion of discount warehouse chains. The San Diego–based company buys hard-cover best-sellers, mass-market paperbacks, and other general-interest books for a little less than bookstore chains pay. Then it ships the books to one of its seven distribution centers for resale at a 15% markup to such discounters as Price Club and Sam's Wholesale Club. As the discount warehouse industry grows from $12 billion in 1987 to an estimated $20 billion by 1990, analysts expect Advanced Marketing to maintain up to a 90% market share in book distribution. Insiders control 64% of the stock, which recently traded over the counter at $12, about 12 times earnings for the fiscal year ended in March. Profits rose 120% to $3.6 million on sales of $110 million. **—Sarah Smith**